The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 84, No. 13 CHICAGO, ILLINOIS MARCH 28, 1925

THE EXTENSION OF HOSPITAL PRIVILEGES TO ALL PRACTITIONERS OF MEDICINE*

S. S. GOLDWATER, M.D.
Director, Mount Sinai Hospital
NEW YORK

Hospitals that are not under the control of medical schools may think that in the matter of medical education theirs is only a subordinate and unimportant part. In fact, their position is not only important: it is supremely important; for, while the medical school may sell the student his admission ticket to the play, seats are not ordinarily reserved, and it remains for the hospital eventually to usher the medical graduate to his place. It was this thought chiefly that prompted me to attempt, at this time, to enlist interest in the extension of hospital privileges to all practitioners of medicine. It seemed especially appropriate that, at a conference on medical education, one who is, in a sense, an official spokesman for hospitals, should urge that the most effective possible use should be made of the extensive facilities for medical education that hospitals control.

These thoughts were reinforced by the receipt, in rapid succession, of several letters from hospitals that were greatly troubled because, after years of peaceful existence as staff or closed hospitals, they were being forced, by the agitation of outside physicians and their sympathizers, to reconsider the basic principles of their organization. It seems that wherever hospitals set up a privileged class of practitioners, a natural resentment is aroused which will not down. Even where, for the moment, no flaming antagonism appears on the surface, opposition smolders beneath, and thus every closed hospital may eventually be compelled, publicly and conclusively, either to justify or to abandon its exclusiveness.

I thought, finally, of the parlous state of the family physician, and especially of the country practitioner, and of the strong and ever stronger disinclination of medical graduates to lead lives of professional isolation, which, for a number of years, has been so conspicuously reflected in every general discussion of medical education.

My assignment in the present symposium does not permit me to discuss at length the respective merits of the closed and the open hospital; we shall learn from other speakers about the peculiar educational opportunities and responsibilities of these two contrasting types. But I can hardly proceed without referring briefly to at least one of the characteristics of the open hospital.

It is to the credit of the open hospital that it brings into touch with an organized medical institution many physicians who, under a more restricted or exclusive hospital system, would be deprived of those helpful and stimulating medical contacts, without which they are in danger of deteriorating in medical knowledge and proficiency from the moment of graduation from medical school. Granting that an open hospital is of necessity a relatively loose organization, in which uniformity of procedure is difficult of attainment, and from which the most systematic and illuminating study of groups of cases by organized teams of clinicians and laboratory men is ordinarily excluded, the open hospital nevertheless affords far better opportunities for fruitful clinical study than can be found in the lonesome and dreary circumstances of private practice. On this ground I have elsewhere urged that in every important center of population there is need of open as well as of closed hospitals; but today I ask permission to recast, on far broader lines, the question of the open versus the closed hospital.

Proceeding from the basic idea that without a hospital connection a physician of ordinary talents cannot mentally thrive, or, at least, that he is in grave danger of contracting loose habits of thought, of becoming careless and superficial in his clinical methods, it follows that it is the duty of physicians to seek hospital connections, and that it is equally the duty of those who control hospitals to facilitate such connections. If anything can be done to liberalize the closed hospital without destroying its efficiency as a teaching and research center, it should be done; if any suggestion can be offered that will tend to improve the character of the service in open hospitals, it should be adopted; but these steps, however important in themselves, are of far less concern than the thought I present today; namely, that the need of a hospital connection for every practicing physician should be the controlling factor in all community hospital organization. Leaving out of the picture for the moment physicians in sparsely settled centers where hospitals are and must for some time—perhaps for all time—remain nonexistent, I submit that it would be wise for the American Medical Association, and for all other organizations that are interested in aiding the medical practitioner and in stimulating medical progress, to unite in a determined effort to reform existing conditions, so that every physician, throughout the years of his active practice, may enjoy and may profit by the advantages of a healthy and progressive professional environment.

It is not necessary here to contrast the unlimited opportunities for professional development which are open to the hospital physician, and the narrower pro-

* Read before the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, Chicago, March 12, 1925.

fessional life to which physicians without hospital connections are confined (I am using these terms, of course, with special reference to scientific proficiency and technical skill, and not with any idea of belittling the character or the achievements of the unattached family practitioner, who occupies a thoroughly dignified position as a useful member of society, and a highly privileged one with respect to many finer human relationships). This annual congress on medical education has made every effort to see medical education steadily and to see it whole; and, far from restricting its attention to problems of undergraduate teaching, it has repeatedly emphasized the need and importance of wider postgraduate instruction. Three excellent papers, presented last year by Dr. Meeker, Dr. Manning, and Dr. Butler, dealt with the subject of postgraduate teaching as a phase of university extension. These papers referred especially to the achievements of Pennsylvania and of North Carolina; a complete record of postgraduate medical teaching under university auspices would include an account of notable achievements of a similar kind in other states, among them my own state of New York, where remarkable progress in postgraduate teaching has been made during the last two years. But however valuable and important the opportunities that are thus created for the unattached physician, these opportunities cannot in their ultimate development or extension do more than to still, temporarily, the knowledge-hunger of a very small proportion of the rank and file of the profession. All honor to the exceptional men who so earnestly desire to overcome their professional disqualifications or limitations that they are willing for a time to forego the emoluments of private practice in order that they may share the stimulating atmosphere of a modern hospital, may sit at the feet of worthy teachers, and may witness the progress or the cure of disease under conditions of careful observation and precise control. For such men, university extension teaching is a boon. But university extension teaching can do no more than create a special and limited opportunity; it functions locally and interruptedly in a field where educational processes should be at work universally and continuously. "Running," it is said in one of La Fontaine's fables, "is of no use. The thing to do is to start in time." The physician who would make full use of the knowledge of his age must start in time and keep going.

I said a moment ago—and this is the burden of my argument—that the need of a hospital connection for every practicing physician should be the controlling factor in all community hospital organization. Just what does this mean—what can it be made to mean—in actual practice?

Consider, first, counties or localities that are entirely without hospitals. The valuable reports of the Council on Medical Education and Hospitals of the American Medical Association tell us how many of these there are and show how they are distributed. At first blush, it may seem idle to talk about providing hospital connections for all the physicians in these districts, since without hospitals there can be no hospital connections; but it is precisely in these localities that the opportunity exists for attaining the desired end with the least difficulty. These counties are without hospitals today, but at any moment a hospital project may be launched in any of them; indeed, next year, or the year after, some of these localities are certain to appear on the hospital map in a new color. Let each new hospital that begins with a clean slate be organized for the benefit of the entire medical profession of the locality. New hospitals can do this with comparative ease, for no intrenched privileges block the way. But slight obstacles even a new hospital may encounter, as a concrete case in my own experience will show.

A little while ago I was invited by the citizens of a town of 15,000 inhabitants, who had never had a hospital, but who were about to establish one, to attend a public meeting called to discuss hospital organization. In the course of the debate it became evident that the townspeople were eager to make their hospital as widely useful as possible, but it was equally plain that some of the physicians present were thinking in terms of personal advantage. In a situation like this, an understanding of basic principles of hospital administration is invaluable; a hospital that is consciously moving toward a definite goal cannot be easily swerved from its appointed path.

Here was a community that had never had a hospital and that had suffered grievously from the lack of one. The townspeople knew that the medical practice of the town was on a relatively low plane, and they looked to the new hospital to elevate it; yet they were being asked to adopt a course that would have been beneficial to a mere handful of physicians instead of one that would raise the standards of the entire local profession. There were, of course, certain local physicians who were more competent than others, and it was proper to assign to these superior men the most responsible positions in the proposed hospital organization; but to have taken in these men alone, while thrusting out those who most sorely needed the hospital's aid and influence, would have been to perpetuate, for a majority of the local physicians, the deplorable effects of professional isolation, from which the hospital offered the natural and the only means of escape. In this situation it became my task to explain that one of the primary objects of community hospital organization is to provide a hospital connection for every reputable medical practitioner, and I had the satisfaction of being assured subsequently that the community had subscribed to this principle and that the new hospital was being organized accordingly. This single experience shows, I think, that we are dealing today with a proposition that has important practical bearings.

Let us consider, next, a community in which a hospital has already been established on rigid staff lines, and which proposes to establish another. In the absence of any guiding principle, the second hospital is likely to copy the methods and organization of the first. If, however, the doctrine of universal hospital association is accepted as valid, the second hospital will be organized as an open hospital, and will offer a common meeting ground for the entire local medical fraternity. Its aim will be not to compete with the preexisting staff hospital on the latter's ground, but to round out the medical organization of the community, and in its own way to make a contribution toward the spread of sound clinical practice.

What bearing, if any, has the principle under discussion on the closed hospital? To me it suggests that without sacrificing those elements of strength which are characteristic of the well organized staff hospital, the closed hospital should utilize every possible means for widening its professional influence. Staff positions should be created for as many clinical and laboratory assistants as the service can healthfully absorb—and the number of men that can be comfortably tucked under

the blanket of a hospitable staff organization is truly astonishing. The appointment of temporary volunteers who are capable of carrying on intensive studies which are beyond the capacity or the available time of the regular staff should be encouraged. Invitations should be extended to the practitioners of the neighborhood to attend clinical and pathologic conferences. Formal postgraduate teaching should be organized—under university auspices, if possible; independently of any medical school, if necessary. In some cases, facilities for the treatment of private patients may, without detriment to the hospital, be placed at the disposal of an associate or "courtesy" staff. Diagnostic aid should be extended to unattached practitioners. Encouragement and practical assistance should be given to open hospitals that are sincerely striving to improve the quality of their work. The educational efforts of the county medical society should be seconded. A reasonable rotation in office should be insured by the adoption of rules prescribing age and service limits. The hospital should lend a willing ear at all times to unattached physicians who believe themselves to be the victims of an unduly narrow hospital policy, and who offer suggestions for extending the privileges of the hospital to a larger group. These are not fanciful or far fetched suggestions; they are all questions of policy and procedure which come up from time to time in actual hospital administration. I have indicated the manner and the spirit in which I believe such questions should be handled; and I hold that they cannot be treated otherwise by any hospital that is seeking sincerely to stretch its educational service to the widest practicable limits.

Twenty years ago, the most pressing problem of medical education in the United States was that of undergraduate teaching. The organization of undergraduate instruction is still an unfinished chapter, but the actual treatment of the sick is influenced far more by mental habits formed by the physician after graduation than by the knowledge he acquires as an undergraduate student. The key to nearly everything that makes for efficient medical practice today is in the hands of the hospitals. Their duty is plain—they must open wide the door of opportunity, so that the entire medical profession may enter in, for the fruits of medical progress belong of right to the many, not to the few.

Gallbladder Surgery.—If I might presume to offer my advice to the surgeon who has no great or continued opportunities for practical work, I would suggest to him never to do gastro-enterostomy in the absence of a demonstrable lesion which requires it; and to leave the surgery of the gallbladder alone. The fact that in my own work nearly one quarter of the patients suffering from cholelithiasis have been operated on before is an argument, not against the surgical treatment of the disease, but against an attempt by the inexpert or untrained operator to deal with conditions that may tax all the energies and call out all the reserves of even the most proficient. Surgery is not only a craft, though craftmanship of a high order is essential. It is a profession to which a man should feel not only complete devotion but also a sense of special dedication. Its practice requires the most flawless integrity in thought and act. It is not lightly to be undertaken by any who have not first surrendered to an iron discipline of training by the masters of their art. No one acquainted with the truth can deny that far too many operations nowadays are done by those who, having perhaps a measure of success in the trivial cases (none are trival to a patient!), rashly embark upon procedures which they are not fully competent to undertake. And the good repute of surgery is wounded.—Moynihan, Berkeley: Some Aspects of Cholelithiasis, *Brit. M. J.*, Feb. 28, 1925.

PHENOLTETRACHLORPHTHALEIN LIVER FUNCTION TEST

SIEGFRIED MAURER, M. D.
AND
L. C. GATEWOOD, M. D.
CHICAGO

Phenoltetrachlorphthalein was studied in 1909 as a subcutaneous purgative.[1] In doses of 5 mg. per kilogram of body weight, it was found to be chiefly excreted in the bile, and partly reabsorbed in the colon. When given intravenously in larger doses, it appears in all the body secretions. The fact that when injected intravenously in doses of 5 mg. per kilogram of body weight it was excreted chiefly in the bile led Rowntree, Hurwitz and Bloomfield[2] to use as an index of liver function the determination of the quantity recoverable in the feces in the first forty-eight hours after injection. This quantitative determination was so laborious and time consuming that it was not practical as a clinical test.

This objection was overcome by McNeil,[3] who attempted to determine quantitatively the dye in the duodenal contents, and later modified by Aaron, Beck and Schneider,[4] who determined the time of appearance of the dye in the duodenal content by use of a Rehfuss tube. Owing to the difficulty and the discomfort to some patients in using the Rehfuss tube and the uncertainty of obtaining through the tube the first dye expelled into the duodenum during a given period, Rosenthal[5] proposed a new method of testing liver function with the dye. His work covers both clinical and animal experimental studies.

He says:[6]

> Because of the fact that the liver is the only organ involved in its elimination, and because the dye appears in the urine when there is impaired output in the stools, it occurs to the writer that following the injection of the phenoltetrachlorphthalein there might be retention in the blood if the liver function is impaired (p. 385).

Following the injection of 5 mg. per kilogram of body weight in normal dogs, there is an immediate rise to 10 per cent. of dye in the blood stream (Rosenthal's arbitrary standard[7]), rapidly falling to only a trace or completely disappearing within fifteen minutes. When the liver has been acutely damaged (chloroform), the amount of dye determinable in the blood reaches from 15 to 30 per cent. or more and remains elevated for a prolonged period, 11 per cent. having been found two hours after injection. There is evidence that the curve obtained has paralleled the degree of impairment of liver function (p. 391).

1. Abel, J. J., and Rowntree, L. G.: On the Pharmacological Action of Some Phthaleins and Their Derivatives, with Especial Reference to Their Behavior as Purgatives, J. Pharmacol. & Exper. Therap. **1**: 231, 1909.
2. Rowntree, L. G.; Hurwitz, S. H., and Bloomfield, A. L.: An Experimental and Clinical Study of the Value of Phenoltetrachlorphthalein as a Test for Hepatic Function, Bull. Johns Hopkins Hosp. **34**: 327, 1913.
3. McNeil, H. L.: The Quantitative Estimation of Phenoltetrachlorphthalein Excreted in the Fresh Bile in Diseases of the Liver, J. Lab. & Clin. Med. **1**: 822-825 (Aug.) 1916.
4. Aaron, A. H., Beck, E. C., and Schneider, H. C.: The Phenoltetrachlorphthalein Test for Liver Function, J. A. M. A. **77**: 1631 (Nov. 19) 1921.
5. Rosenthal, S. M.: A New Method of Testing Liver Function with Phenoltetrachlorphthalein, III, Clinical Report, J. A. M. A. **79**: 2151 (Dec. 23) 1922; II, Bull. Johns Hopkins Hosp. **33**: 432 (Dec.) 1922; An Improved Method for Using Phenoltetrachlorphthalein as a Liver Function Test, J. Pharmacol. & Exper. Therap. **19**: 385 (June) 1922.
6. Rosenthal (Footnote 5, third reference).
7. Based on the assumption that one twentieth of body weight is blood, the quantity of dye injected, 5 mg. per kilogram of body weight, would represent an initial concentration of 10 mg. per hundred cubic centimeters of blood, and this corresponds to 100 per cent. in Rosenthal's series of arbitrary standards.

As the test appeared to be of value as an indication of the degree or extent of liver damage in chloroform poisoning Lamson and his associates[8] used the test, along with all other accepted liver tests, to determine the toxic index of carbon tetrachlorid. This series of observations is the largest piece of purely experimental work in which the test has been used. It was repeated at frequent intervals on animals until they had recovered completely or died of the injuries produced. The following comments are made.

1. It is not known what function of the liver the dye tests, and whether the toxic agents affect factors other than dye excretions of the liver, which may influence the rate of disappearance of the dye from the blood stream (p. 226).

2. Two types of curves are produced; (*a*) abnormal dye concentration with rapid disappearance; (*b*) normal concentration and prolonged retention (p. 226).

3. In the quantitative determination, there is considerable inaccuracy in reading dye concentration in the presence of bilirubin (p. 228).

4. In nearly all cases of intoxication, a change in bilirubin concentration can be made out as early as the change in the phenoltetrachlorphthalein method, and has the advantage of showing a continued high concentration in cases of intoxication, in which the dye retention curve has returned to normal though the animal showed increased clinical signs of intoxication, jaundice, depression, and weakness (pp. 280-281).

Rosenthal[9] followed this work with the establishment of a normal phenoltetrachlorphthalein curve for rabbits. He checked this with the toxic index method of Lamson, using different degrees of extirpation of the liver up to complete hepatectomy. In this piece of work he offers an explanation of the removal of the dye from the blood stream as follows:

As the phthalein leaves the blood stream rapidly, it was presumed that the majority went into the liver, and that liver extirpation would result in its retention in the blood in high concentration. However, as it is seen from the experiments, relatively low concentrations, approximately 13 per cent., were obtained in the rabbit after removal. This implies a third factor concerned in its distribution in the body shortly after its intravenous injection; that is, the tissues in general. The probable mechanism of its distribution and elimination is that immediately after injection it *diffuses* throughout the body tissues, but as the liver carries out the rapid removal from the blood, the equilibrium between the amount of dye in blood and tissue is disturbed so that the tissue gradually yields it back to the blood, where it is carried to the liver for absorption and excretion (pp. 391 and 392).

Commenting further on the interpretation of the results obtained from the test, he says:

Thus, while these experiments show that results by this method may be interpreted quantitatively from a functional standpoint, the relation between function and extent of pathologic lesion may be widely divergent, depending on the type of lesion and its duration (p. 392).

Delprat,[10] seeking for an ideal dye for a liver function test, proposes the following conditions to be fulfilled:

(*a*) It must be nontoxic. (*b*) It must be a crystalloid (we know that the fate of colloid dyes in the organism is entirely different from that of diffusible dyes). (*c*) It must be excreted from the organism by means of the liver parenchyma cells. (*d*) It must remain in the circulation long enough to allow for the determination of the dye concentration in the blood stream to be made (p. 401).

He concluded that rose bengal fulfilled these requirements. It is rapidly eliminated from the blood and slowly from the bile. He agreed with Rosenthal regarding the value of the rate of removal of the dye from the blood stream, saying:

If the liver is the only organ concerned with the elimination of the dye, as it appears to be, then the rate of disappearance from the blood stream after injection should be definitely influenced by the liver activity or by the extent of liver injury. It is to be expected that the dye will remain longer in the circulation of animals whose liver is injured than in the blood stream of normal animals (p. 402).

Following this work, Rosenthal reports a detailed investigation of a large group of phthalein dyes, using rabbits for which he reports the rate of disappearance from the blood stream and the elimination in the bile.[11] He states more definitely in what condition the dye exists in the blood stream (p. 270).

The phenoltetrahalogenphthaleins are excreted to a large extent in the bile. They circulate in the blood in their colorless forms, which are insoluble and nondializable.

As regards others of the group he says:

The sulphonates of them do not go into the urine but in traces and in the bile very rapidly, 61 per cent. in thirty minutes and 85 per cent. in 120.

In further explanation of the fate of the part that goes into the tissues as regards interfering with the value as a liver function test, he says:

It was learned that when it disappears from the blood immediately after injection, it does not all go into the liver, but there is a considerable portion that *diffuses* into the general tissues. This factor of tissue is a constant one and does not interfere with the specificity of the test, since the dye is later returned to the liver from the tissues (p. 283).

However, the results obtained by the sulphonated phenoltetrahalogenphthalein proved to be so much superior to the unsulphonated dye that he recommends brome sulphaline as the best suited for liver function tests, since it remains in the blood almost in toto shortly after injection and quite slowly disappears from the blood stream. It averages 31 per cent. three minutes after injection, and is almost completely removed in fifteen minutes. The total amount excreted in the bile is 61.5 per cent. in thirty minutes, 81 per cent. in sixty minutes, and 85 per cent. in two hours.

NEW OBSERVATIONS

In establishing the normal curve for the rabbit for phenoltetrachlorphthalein, blood was drawn every five minutes. Such procedure is not practical with patients. It often occurs that after one vein has been used for intravenous injection, there is no other vein that can be readily entered to obtain samples of blood for determination. To make it possible to obtain blood samples at frequent intervals, we have devised a new method of determination. It requires more work than the present method, but it is possible to have all the determinations completed ten minutes after the last sample of blood has been drawn. The information thus obtained is more valuable than with determinations made at longer intervals as by methods previously used. For example, in one patient the blood deter-

8. Lamson, P. D.; Gardner, G. H.; Gustafson, R. K.; Maire, E. D.; McLear, A. J., and Wells, H. S.: The Pharmacology and Toxicology of Carbon Tetrachloride, J. Pharmacol. & Exper. Therap. **99**: 215 (Nov.) 1923.

9. Rosenthal, S. M.: A New Method of Testing Liver Function with Phenoltetrachlorphthalein, IV, The Relation of Impaired Function to the Amount of Normal Liver Tissue, J. Pharmacol. & Exper. Therap. **23**: 385 (June) 1924.

10. Delprat, G. D., Jr.: Studies on Liver Function: Rose Bengal Elimination from the Blood as Influenced by Liver Injury, Arch. Int. Med. **33**: 401 (Sept.) 1923.

11. Rosenthal, S. M., and White, E. C.: Studies in Hepatic Function; VI. A. The Pharmacological Behavior of Certain Phthalein Dyes; B. The Value of Selected Phthalein Compounds in the Estimation of Hepatic Function, J. Pharmacol. & Exper. Therap. **24**: 265 (Nov.) 1924.

mination showed less than 2 per cent. at the end of thirty minutes. Forty minutes after injection, the patient had a severe chill followed by a rise of temperature to 105 F. During the chill, the determination showed 8 per cent., a higher concentration than was found ten minutes after the injection was completed (Chart 1). This change would not have been discovered by determinations made only at the intervals previously made.

TECHNIC

The ear is pricked as for a blood count, and 0.3 cm. of blood is drawn into a graduated pipet previously moistened with potassium exalate solution to retard clotting. It is then dropped into 4 c.c. of chemically pure acetone, immediately stoppered, and shaken vigorously to produce a fine precipitate. The precipitate is washed five times by decanting through a 7 cm. filter paper. If the blood clots in the pipet, the determination will be low unless the clot is extracted with a larger quantity of acetone by repeated washings on the filter paper. The filtrate is collected in an evaporating dish and evaporated to dryness on a water bath.

The residue in the evaporating dish is heated for several minutes after it becomes dry. The dish is then cooled and the precipitate extracted with 0.3 c.c. of tenth normal sodium hydroxid (the volume of blood originally drawn). The extract is then drawn through a pipet into a Kahn precipitin tube and read at the greatest depth of solution possible against an equal depth of standard solution (tenth normal sodium hydroxid solution containing, respectively, 2, 4, 6, 8 and 10 mg. per hundred cubic centimeters, corresponding to Rosenthal's 2, 4, 6, 8 and 10 per cent. standards) in similar tubes. Should the unknown be of higher concentration than 10 per cent., it is diluted an aliquot number of times with tenth normal sodium hydroxid, so that the reading will fall between 2 and 10 per cent., and a corresponding correction is applied to this reading to obtain the original percentage. The higher concentrations are more difficult to read than the lower ones, and without precise colorimeters only approximate readings can be made above 10 per cent.

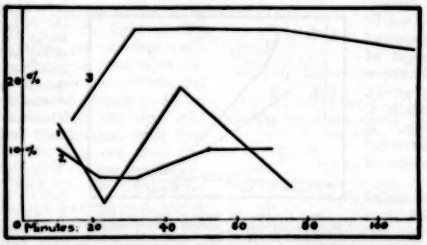


Chart 1.—Determination of dye in the blood of three patients: 1, E. M., carcinoma of head of pancreas (clinical diagnosis); 2, M. K., cirrhosis of liver, aspiration abscess of left upper lobe of lung, terminal septicemia with multiple abscesses (necropsy); 3, N. O., cirrhosis of liver (atrophic) with ascites (clinical diagnosis).

To test the accuracy of this method of determination, duplicate determinations were run on oxalated blood to which known quantities of dye had been added by another member of the staff. Four such unknowns were found to contain 9, 7, 3 and 4 per cent., the true percentage being 10, 8, 3 and 4, respectively.

In some blood, the acetone soluble lipoid emulsifies in the sodium hydroxid extract. This interferes slightly with the reading but does not introduce a serious error, as the percentages are arbitrary. The same relative error will occur in each determination, so that the curve is a true representation of the rate of removal of the dye from the blood stream. As the volume of blood is not a constant proportion of the total body weight, the arbitrary standards that have been used are only approximately correct, and the shape of the curve of dye retention in the blood is of more significance than its height.

This method was repeatedly checked on rabbits before being applied clinically. Rosenthal's technic[9] was used in the injection of the dye. The blood was removed from the marginal vein of the other ear by cutting it across, a new cut being made for each sample. We obtained the same values for the normal as did Rosenthal. However, it is a significant finding that rabbits which had previously been immunized to a foreign protein were found to have a lower initial concentration in the blood and a more rapid removal from the blood stream than the normal rabbits. The same type of curve was noted in a patient who had received five intravenous injections of a mixed vaccine in treatment of subacute arthritis. The dye was completely removed from the blood in less than fifteen minutes, as found by Rosenthal's delicate ring test.

The chemical and pharmacologic properties of the dye are as follows:[3] It is odorless, tasteless, water insoluble, and forms with alkali deeply colored hydrolyzable salts, which are decolorized by the addition of acid, serum or animal tissue. It is nonirritating to the subconjunctival sac or subcutaneous tissue. The alkali salts are irritating unless highly diluted; they act like caustic alkalis.

It has no effect on the coagulation time of the blood, is not antiseptic to *B. proteus*, and has no cholagogue or secretin action. If injected rapidly, it causes a transient rise of blood pressure of from 20 to 50 mm. of mercury, but none if as long as two minutes is used in the injection of a standard dose (5 mg. per kilogram of body weight). It is secreted in the bile, the so-called "conjugate form" appearing in ten minutes, and the free form in twenty minutes. It is reabsorbed by the colon. The purgative action lasts about six days in man. In dogs, the dye appears in the stool for six days after a subcutaneous injection. It was thought (in 1913) to exist in the serum as a "conjugate form" in equilibrium with a "free" form. The conjugate form, described by Rowntree and Abel as appearing in the bile ten minutes after injection, giving no color on addition of alkali, is undoubtedly a reduced phenoltetrachlorphthalein, which, when treated by hydrogen peroxid in the presence of a catalyzer, is transformed to the "free" form and will then give a color on the addition of alkali. This reduction may naturally be expected in passing through the liver. The assumption that this so-called conjugate form existed in the blood stream in equilibrium with the free form was advanced as an explanation of the low percentage of the dye determinable in the blood stream a few minutes after injection. Repeated tests with various oxidizing agents have failed to reveal the presence of such a changed form of the phenoltetrachlorphthalein, and Rosenthal's recent investigations have shown that the portion which is not present in the blood in the "free" form determinable by addition of alkali is entirely

absent from the blood. He assumes that it has "diffused" into the other tissues of the body, but his description of the dye as a "nonsoluble, nondialyzable" substance makes it difficult to conceive of its diffusion into the body tissues within the time stated. In some of our observations it was noted that following a chill the percentage of dye in the blood may very quickly increase (as, for example, from 2 to 13 per cent. in ten minutes) is likewise not in conformity with the usual ideas of diffusion and is more readily explained on the basis of a vital process.

It is known that the dye occurs in the blood stream in an insoluble, nondialyzable form in particles so small as readily to pass through the finest ordinary filters. It is injected in crystalloid solution, and the hydrogen ion concentration of the blood is such as to split off the sodium ion of the alkali salt, throwing down the dye in colloid suspension in the blood. It is known that the size of colloid particles depends on the conditions under which they are thrown down, and that the rate of injection and the varying characteristics of different bloods may cause wide variation in the size of the particles formed.

The fact that it is in the blood stream in such form probably accounts for the occasional production of thrombi. The first published clinical work pointed out that it must not be used on patients with an impaired circulation because of the danger of venous thrombosis, and cited venous thrombosis in ten of sixty-seven patients, with unexplained death in one case six days after injection.[2] It was pointed out that this detracted from its practical use in cases of cirrhosis of the liver.

Three of the patients in our series have died from two to seven days after the test was made:

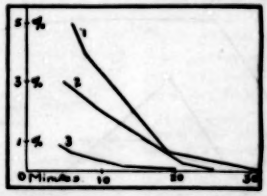


Chart 2.—Determination of dye in the blood of three rabbits: 1, normal rabbit; weight, 2,000 gm.; 10 mg. of dye injected (5 mg. per kilogram of body weight). 2, rabbit immunized to heat-killed bacteria; weight, 2,750 gm.; 15 mg. of dye injected (5 mg. per kilogram of body weight). 3, rabbit immunized to heat-killed bacteria; weight, 1,950 gm.; 200 mg. of dye injected (100 mg. per kilogram of body weight, or twenty times the usual dose). Curves are drawn on the basis of 10 mg. per hundred cubic centimeters of blood as 100 per cent. (Rosenthal's arbitrary method).

Case 1.—S. G., a woman, admitted Jan. 17, 1924, had had rheumatism in 1916, followed by cardiac symptoms. There had been no further illness until an abortion one year before admission, followed by dyspnea, orthopnea, edema and other symptoms of cardiac decompensation, persistent to the time of admission. Physical examination revealed the left border of the heart at the anterior axillary line, with auricular fibrillation. The liver margin was 8 cm. below the costal margin; there were moist râles at the base of the lungs, cyanosis, edema of the legs, and ascites. Roentgen-ray examination suggested a small amount of fluid in the pericardium. The urine contained albumin and casts. There were no other essential findings. The compensation improved after rest in bed in the hospital. January 23, phenoltetrachlorphthalein, 5 mg. per kilogram of body weight, was injected. It was impossible to draw blood because the injection was followed by a severe reaction from which the patient recovered, showing no effect after one or two hours. The patient's condition remained normal during the next two days. The patient was found dead in bed during the night of the second day, approximately forty hours after injection. Necropsy (by Dr. Singer) revealed thrombosis of the right pulmonary artery, chronic deforming mitral endocarditis with extreme stenosis, healed endocarditis of the tricuspid leaflets with marked stenosis, hypertrophy of the myocardium, dilatation of the right auricle, hydropericardium and hydrothorax and cyanotic induration of the liver, spleen and kidneys.

Case 2.—C. G., a man, admitted, May 14, 1924, had consumed large quantities of alcoholic beverages for many years; since prohibition this had been chiefly "moonshine" and home brew. He had had headache, poor memory and irritability for many months. The vision had failed suddenly six months before, after a two week's debauch. Other complaints included digestive disturbances, hallucinosis and mental impairment. The examination revealed Argyll Robertson pupils; pyorrhea alveolaris; impairment of resonance and alterations of breath sounds over the left lower lobe of the lung; râles at the base of the right lower lobe; no outstanding cardiac findings; ataxia and sensory disturbances of the feet and legs. May 19, at 11 a. m., 120 mg. of phenoltetrachlorphthalein (approximately 2.5 mg. per kilogram of body weight) was injected. The patient had no reaction following the injection. Determinations of dye in the blood showed: after five minutes, 4 per cent.; after fourteen minutes, a trace; at the end of one hour, none. The patient showed no ill effects following the injection, but died suddenly at 11:05 p. m. twelve hours after injection. Necropsy (by Dr. E. R. LeCount) revealed: a large liver, with marked fatty changes; marked generalized anemia; emaciation; left serofibrinous pleuritis; fibrous obliteration of the right pleural cavity; slight cloudy swelling of the kidneys, with passive hyperemia; hyperplasia of the spleen; slight edema, and hyperemia of the leptomeninges.

Case 3.—E. B., a man, admitted to the Central Free Dispensary, Sept. 23, 1924, complained of loss of weight and strength and a tender mass projecting from beneath the right costal margin. He was admitted to the Presbyterian Hospital, November 14, with the foregoing complaint and spontaneous pain in the region of this mass. He had vomited for a period of three weeks in June, 1924, the vomiting subsiding without treatment. The patient had continued to work until September 1, though gradually losing weight and strength. There were no other gastro-intestinal symptoms. The patient said there had been no diarrhea. He had served in the U. S. Army in Cuba and Porto Rico, was familiar with the occurrence of dysentery in the tropics, and stated that he had never had any symptoms of intestinal disease. Examination revealed an enlargement of the right lobe of the liver, extending 10 cm. below the costal margin, which was smooth and firm. Emaciation was marked. There was no jaundice. No other masses or glands were palpable. There was an irregular fever of from 99 to 101 F. The Wassermann reaction was negative. Blood cultures were negative. Roentgen-ray examination of stomach, colon and chest was negative. The urine was normal. The stool showed traces of occult blood, but no gross or microscopic blood or pus. November 22, 300 mg. of phenoltetrachlorphthalein (5 mg. per kilogram of body weight) was injected. One-half hour after the injection the patient had a severe chill, which lasted twenty or thirty minutes. The temperature, which had been 101 before the test, rose to 102. Blood determinations showed: ten minutes, 6 per cent.; twenty-five minutes, 4 per cent.; forty minutes, 3 per cent., and seventy minutes, 1 per cent. After this test, the patient showed no change in symptoms or findings, and continued to be up and about the ward each day. November 27, the test was repeated, one half of the previous dose (2.5 mg. per kg. of body weight) being used, and no reaction occurred. Blood determinations showed: ten minutes, 3 per cent.; twenty minutes, 2 per cent.; thirty-five minutes, less than 1 per cent. and sixty minutes, less than 1 per cent. The patient was transferred to the surgical service and was kept in bed until November 29, when exploratory laparotomy was made by Dr. Bevan under ethylene anesthesia, and a solitary liver abscess was found. It was walled off with iodoform gauze, and four days later the abscess was drained. The patient left the operating room in good condition, and died suddenly after being put back to bed. Postmortem examination (by Dr. Carl Apfelbach) revealed a large pulmonary embolus. The embolus was a

canalized iliac and abdominal vena cava thrombus, which consisted of two separate parts, that which had been in contact with the vessel wall being much older than the inner portion. The vein itself showed no gross change. The thrombus gave a distinct qualitative test for the dye.

The same fact of the suspension of the dye in the form of colloid particles has an important bearing on the mechanism of its removal from the blood stream. Delprat has called attention to the fact that the fate of colloid dyes in the blood stream is entirely different from that of crystalloid dye substances. It is known that such colloid substances are removed from the blood by phagocytic cells. Colloidal silver and other similar substances have been proved to be removed from the blood by the Kupffer cells in the liver. We have tried by microchemical reactions to demonstrate the dye in the Kupffer cells, and while there was a slight reaction observable in the entire liver section, it was not possible to demonstrate its presence specifically in the Kupffer cells. It was, however, readily demonstrated in the proximal convoluted tubules of the kidney (rabbit), where many colloidal dye substances phagocytized by the Kupffer cells have also been demonstrated.

Delprat [10] has given four conditions that must be fulfilled by an ideal dye for testing liver function. When his work was published, the dye was still believed to occur in the blood in a so-called "conjugate" form, in equilibrium with a "free" form. In the light of the present results, Delprat's conditions are satisfied only when the dye obtained from the duodenal content or the stools is used as the index of liver function. When the rate of disappearance from the blood stream is to be accepted as an index of liver function, the dye substance used, in order to be ideal for the test, must fulfil one other condition; it must be removed from the blood stream by the liver tissue only. Of the five conditions mentioned, it is seen that two are not fulfilled by phenoltetrachlorphthalein. It is not a crystalloid, and it is not removed from the blood stream solely by the liver.

Another danger pointed out by Dr. LeCount [12] in the use of any halogenated organic compound that is to be present in the liver in relatively concentrated form is acute liver necrosis produced by splitting off the halogen acid in free form by the very active metabolism of the liver. Graham [13] pointed out the probability that late poisoning by chloroform and other alkyl halids was related to the dissociation of the halid with formation of the halogen acid. Though the tetrahalogen phenolphthaleins and the phenoltetrahalogenphthaleins are quite stable compounds, the fact that they are concentrated in the liver, an organ of very active metabolism, coupled with the fact that there is a considerable fraction of most of such dyes not recoverable from the bile, leads us to consider strongly the probability that a part of the dye may be changed during the passage through the liver. If the free halogen acid should be split off, great damage to liver cells would result. If this occurred in a patient whose liver was already damaged by previous disease, it is reasonable to believe that it may cause death.

CONCLUSIONS

1. The dye is removed from the blood stream as other colloidal dyes, and is not removed from the blood stream originally by the liver alone.

2. It is shown that the rate of removal from the blood stream of the colloidal substances used for liver function tests is influenced to some extent by varying degrees of immunization.

3. The rate of disappearance from the blood stream, while showing certain definite changes in cases of advanced liver disease, is apparently not a true index of impairment of liver cell function.

4. Determination of the dye in the duodenal content is, in the light of our present evidence, a more logical index of liver function.

5. The injection of substances of this group is not without danger.

6. There is here offered a new method of determination of the dye in the blood by which it is possible to establish more completely the curve of the disappearance of the dye from the blood stream.

7. The ideal dye for a liver function test must be nontoxic; it must be a crystalloid; its primary removal from the blood stream must be solely by the liver; it must remain in the blood a sufficient length of time for determination to be made, and its ultimate removal from the organism must be solely by the liver parenchyma cells.

122 South Michigan Avenue.

12. Le Count, E. R.: Personal communication to the authors.
13. Graham, E. A.: Late Poisoning with Chloroform and Other Alkyl Halides in Relationship to the Halogen Acid Formed by Their Chemical Dissociation, J. Exper. Med. 23: 48-75 (July) 1915.

SCIATICA

A NEURO-ORTHOPEDIC CONSIDERATION *

CHARLES ROSENHECK, M.D.
Attending Neurologist, Hospital for Joint Diseases; Associate Attending Neurologist, Jewish Memorial Hospital
AND
HARRY FINKELSTEIN, M.D.
Attending Orthopedic Surgeon, Hospital for Joint Diseases; Consulting Orthopedic Surgeon, Jewish Memorial Hospital
NEW YORK

To the neurologist and orthopedist there is apparently no more pressing problem than neuritic affections of the sciatic nerve. The frequency with which this bulky nerve trunk is involved, the chronicity of its ailments and the difficulties encountered in effecting a favorable therapeutic result make it indeed a formidable task for those who assume the responsibility of treating sufferers from the painful and disabling effects of sciatic involvement.

Before proceeding with the various causes that may be responsible for disturbances in the domain of the sciatic nerve, it may not be untimely to review briefly the anatomy and physiology of this important nerve trunk, and, if possible, attempt an explanation of the mechanics of the disease—considered principally from an orthopedic standpoint—since the cases which give us the most concern and which form the bulk of our material are secondary to frank orthopedic affections. We have in a previous communication [1] termed these cases "orthopedic sciaticas," which readily suggest their origin, to distinguish them from sciatica due to other causes, of which we shall speak later. Indeed, it may seem somewhat revolutionary to say that, as far as our experience goes, the vast majority of true sciatic affections are caused by an orthopedic condition; viz., sacro-iliac disease.

* From the Divisions of Neurology and Orthopedic Surgery, Hospital for Joint Diseases.
Read before the Orthopedic Section of the New York Academy of Medicine, Feb. 20, 1925.

1. Rosenheck, Charles; and Finkelstein, Harry: The Treatment of Sciatica by Perineural Infiltrations and Epidural Injections, J. A. M. A. 67: 2001 (Dec. 30) 1916.

ANATOMY AND PHYSIOLOGY OF THE SCIATIC NERVE

In considering the anatomy of the sciatic nerve, one is impressed by the bulk of its trunk, the length of its course, and the number and importance of its branches which supply the greater part of the lower limb (Tinel). According to Tinel,[2] the sciatic nerve is the longest and most widely distributed in the human body. This obviously explains its vulnerability to noxious influences and to traumas. Its origin may be traced to the fourth and fifth lumbar root through the medium of the lumbosacral cord, and more particularly in the first, second and third sacral roots. It represents, as Cruveilhier tersely said, the sacral plexus condensed in one nerve cord. It passes round the ischial spine and descends in the posterior part of the buttock between the ischium and the greater trochanter, covered by the mass of the gluteal muscles and the pyramidalis and also below this muscle by the lower part of the gluteus maximus. It descends in the posterior part of the thigh into the interspace comprised between the semimembranosus and the semitendinosus within and the biceps without. It rests on the posterior surface of the femur, which is covered by the insertions of the adductors and by the vastus externus.

It becomes superficial at the upper end of the popliteal space, in the neighborhood of which it divides into its two terminal branches—the external and internal popliteal nerves. The level at which this division takes place is extremely variable; it may be very high—even as far up as the pelvis. While this high division is quite unusual, it is important to bear its possibility in mind, since, in attempting to stretch the main sciatic trunk, an undue amount of strain or trauma on the less robust divisions may result in a traumatic palsy—two instances of which have recently come under observation.

The function of the sciatic nerve may briefly be summed up thus: It innervates those muscles that flex the leg on the thigh and those that flex and extend the foot. Under the latter may be included the nerve supply from the same source to the muscles that flex and extend the toes.

We have mentioned before the vulnerability of the sciatic nerve to noxious influences and to traumas. We shall review the various conditions that may bring about sciatic disturbances, excluding those, however, the results of military warfare. These obviously do not concern us, since they involve direct injury to the sciatic nerve by explosives or other agencies, and require special surgical measures for their relief. It is, then, rather those forms of sciatic affections that we see in civil life and particularly the types one encounters in an orthopedic institution that concerns us most and will be reviewed.

VARIETIES OF SCIATICA

In a previous study on the treatment of sciatica by perineural infiltrations and epidural injections, we classified sciatica as follows:

Class 1. Symptomatic sciatica: due to recognizable infections, toxemias, constitutional diseases, exposure to sudden temperature changes, pelvic disturbances and organic nervous disease.

Class 2. Orthopedic sciatica: an arbitrary division due to recognizable orthopedic conditions; viz., spondylitis deformans, lumbosacral, sacro-iliac subluxations and disease and affections of the hip joint.

Class 3. Sciatic neuritis: fortunately in the minority and not due to any recognizable condition as in Classes 1 and 2.

Since the publication of the foregoing classification nearly eight years ago, added experience has modified our view with regard to Class 3. We erred at that time when we stated that sciatic neuritis was in the minority and not due to any recognizable condition as in Classes 1 and 2. We have since learned that sciatic neuritis is common enough and that it is the end-result of the so-called "orthopedic sciatica," and in practically all the cases observed the underlying orthopedic affection was sacro-iliac disease—either traumatic or infectious. We have seen no valid reason to change the classification of 1 and 2, which in the main readily conform to the clinical affections that create the syndrome of sciatic disease. We are also not unmindful of the fact that the aforementioned classification may be quite faulty and at variance with the experience and opinions of others, since it may be rightly argued that all forms of sciatica are symptomatic, and that any given case is always the expression of an underlying disturbance—of either a local or a general nature. This is quite true, since it is our experience that sciatica as a primary affection does not exist. What we have attempted to do is to place the affection in two categories, one of which is symptomatic of a variety of underlying pathologic states, and, if one ventures to use the caption, may be termed pseudosciatica; and the other more prevalent condition resulting solely from affections of the lumbosacral and sacro-iliac joints, which in turn compromises the integrity of the roots that enter into the formation of the sciatic trunk and thus creates true sciatic disease.

For obvious reasons, therefore, we shall not devote further space or time on the group which we have termed symptomatic sciatica, or pseudosciatica. Since our interests and energies have been in the main directed to the true form of the affection, an explanation may be ventured as to the mechanism that brings it about.

We shall first consider spondylitic disease—particularly that type which involves the lumbar vertebrae. As a result of exudates and bony overgrowth in the region of the intervertebral foramina, the lumbar roots are irritated or compressed, giving rise to radicular forms of pain. Obviously, involvement of the fifth lumbar root will give rise to sciatic pain, since this large and important nerve root enters into the formation of the plexus, from which the sciatic nerve has its origin. Strangely enough, this type of sciatica—no matter how long and persistent the process—never terminates in true neuritic disease; at least, we have not observed a single instance in the material at our disposal. An explanation for this phenomenon has been ventured:[3] that degenerative disease of the sciatic nerve—in other words, a true neuritis—was not seen as often with spondylitis as with sacro-iliac affections. This marked difference may be explained by the fact that in spondylitis the roots are involved, while sacro-iliac disease affects the plexus, the latter being more vulnerable to neuritic changes. Plexus formation is relatively a later acquisition in the development of the peripheral neural apparatus; hence they are apt to succumb more readily to noxious influences.

The second consideration brings us to sacro-iliac disease and the rôle this orthopedic condition plays in the

2. Tinel, J.: Nerve Wounds, New York, William Wood & Co., 1917.

3. Rosenheck, Charles: Radicular Pain in Relation to Spondylitis Deformans, M. J. & Rec. 120:215 (Sept. 3) 1924.

causation of sciatic nerve affections. The mechanism bringing this about may be explained somewhat as follows: Since the lumbar plexus is embedded in the substance of the psoas muscle and this muscle passes over the sacro-iliac area, to reach its insertion in the femur, one must assume—theoretically at least—that trauma or infection of the sacro-iliac joint creates an edematous or inflammatory reaction in the psoas muscle, which in turn must affect the nerves embedded in its substance. Here, again, compromising those important lumbar roots which enter into the formation of the sciatic nerve must obviously create descending degenerative changes in this nerve trunk. Experience seems to add additional support to this view, since, as we have pointed out before, the vast majority of sciatic neuritides are secondary to sacro-iliac disease.

SIGNS AND SYMPTOMS

One cannot dismiss the neuro-orthopedic aspects of sciatica without reviewing some of the commoner signs and symptoms of this affection. It is true that the patient often points out with anatomic accuracy the course of his disturbance, and it therefore seems elementary to touch on the diagnostic phases of sciatica. Certain errors, however, in the recognition of the pseudo from the true type of sciatic disease prompt a discussion of the signs and symptoms. Thus, we have observed a case of tumor of the cauda equina and one of pelvic exudate in which the chief complaint was backache with sciatic pain. These patients were considered as suffering from sacro-iliac disease, and jackets were applied. No doubt, instances of faulty diagnosis in cases of this type are many.

In discussing the symptoms, the most outstanding is pain along the course of the sciatic nerve or limited to one of its chief branches. Indeed, as mentioned previously, the patient maps out with anatomic accuracy the course of the nerve trunk, in describing his distress. The pain may be paroxysmal or continuous, may be worse day or night, and may or may not be influenced by weather conditions. It may be localized by the patient at the site of exit of the sciatic nerve, in the popliteal angle, or in the malleolar area of the foot. The posterior aspect of the thigh is quite often the only site of agonizing pain. The subjective phenomenon of pain, however, does not help us in differentiating the pseudo from the true form of sciatica, since this symptom is present in both conditions. We then avail ourselves of certain well defined objective phenomena, which assist us materially in arriving at a conclusion. In the order of their importance, they are: tenderness along the course of the sciatic nerve; tension or stretching the nerve, thereby inciting pain, as in the well known Lasègue maneuver; flexion attitude of the involved limb; muscle hypotonia or atrophy, and scoliosis of the lower spine. Separate mention should be made of the depression or abolition of the Achilles reflex, since this sign is a most valuable one, indicating —in the absence of cord disease—a degenerative process of the sciatic nerve; in other words, a true neuritis.

The individual objective phenomena are self explanatory and need not be dwelt on at length. The presence of scoliosis in the course of a sciatica has interested us very much, and warrants explanation. Oppenheim quotes Ehret on this point to this effect. He regarded the scoliosis as a result of the alteration of position which the leg undergoes along with the pelvis. From the instinctive effort of the patient to relax the affected nerve, the leg of that side is flexed at the hip joint abducted and rotated outward, so that the so-called lumbar space—the distance between the crest of the ilium and the false rib—is widened at this point. It has also been suggested that the patient endeavors by this attitude to lessen the pressure of the inferior margin of the pyriformis muscle on the sciatic nerve. It has also been pointed out that in consequence of the depression of the affected side of the pelvis, the gluteal fold lies much lower down. Our observations lead us to believe that there is considerable merit if not truth in the assertions of these authors.

Before concluding the neurologic aspects of sciatica and taking up the all-important matter of treatment, it may not be inopportune to stress the fact—elementary as it seems—that all patients with sciatic pain should be subjected to a thorough group study, since only in this way can we save ourselves the embarrassing predicament of treating a symptom instead of the underlying disease.

In considering the treatment of sciatica, we shall obviously exclude those forms which we have termed pseudosciatica, since it is evident that to include these would simply confuse our conception of the true types, which, as we have already emphasized, follow in the wake of orthopedic disorders. The treatment of the latter, which will be discussed more fully later, is invariably followed by strikingly favorable results. The treatment of the former or pseudoforms imply the detection of a wide variety of affections that may be responsible for the sciatic pain and the proper therapeutic applications to these underlying affections. Fortunately for ourselves and our patients, the therapeutic task in the so-called "orthopedic sciatica" is a relatively simple and uniform affair as contrasted with those cases that occur from conditions of a widely diverse etiology.

TREATMENT OF SCIATICA

Prior to the recognition of the relation between orthopedic conditions and sciatica, the treatment according to one of the leading systems of medicine published a quarter of a century ago was of a local and general nature. The gouty or rheumatic diathesis was stressed, and the usual salicylates and colchicum therapy administered. Locally, the treatment ran the gamut of counterirritation with fly blister, poultices, steam baths, cupping and cautery to acupuncture with a series of needles along the course of the nerve. In severer forms, injections were attempted directly into the nerve with cocain or morphin. Electricity and splinting the affected leg also came in for their share in treating the affected person. Finally, in intractable cases, when all the orthodox measures had failed, stretching of the affected nerve was resorted to.

Starr [4] stressed the point that nerve stretching was to be done only as a last resort, since he considered it a hazardous procedure in view of the fact that paralysis of certain muscles of the affected leg had followed it. Although we may not agree with this authority that stretching is to be done as a last resort, we should all heed the warning of a possible traumatic paralysis. We have recently observed two such instances after nerve stretching or, as orthopedists term it, manipulation. It may be of interest at this point to mention the fact that Starr was not very much impressed with the results of nerve stretching. He had observed only one cure and numerous failures. We feel that this generalization does not hold at this day, in view of the excellent results attained in association

4. Starr, M. A.: Text Book of Nervous Diseases, 1903, p. 98.

with proper orthopedic measures. We shall dwell on this point more fully later.

Summarizing, then, the therapeutic measures in vogue a quarter of a century ago, and their results, it was found that the prognosis was favorable in mild cases. In more severe cases, sciatica lasted for months or years, and even kept the sufferer completely confined to bed. Obviously, these discouraging conditions prompted a more radical form of therapy, which apparently had for its object the blocking of painful impulses in the course of the affected nerve. Schleich and Lange [5] were pioneers in this field, and introduced the method of perineural infiltrations. Schleich injected large amounts of an anesthetizing solution along the course of the nerve, while Lange used physiologic sodium chlorid solution containing eucain, in doses of from 100 to 150 c.c., and injected the sciatic nerve at the foramen. The results were reported as uniformly successful, and far superior to any previously applied method of treatment. The pendulum then swung to the injection method of treating sciatica, to the exclusion of everything else. Indeed, very little attention was evidently paid to the underlying factors involved in the average case; or, what is more likely, the rôle that orthopedic conditions played in the development of the sciatic syndrome was either ignored or misunderstood.

The French clinicians apparently were not very much impressed with either the method or its results, and adopted a still more radical form of therapy. It was their belief that a good many cases of sciatica were really radicular in origin, and Dejerine lent the weight of his authority to this view. With the radicular view as a point of departure, it was proposed to inject solutions into the sacral canal epidurally and thus influence the disturbance at its source. Cathelin [6] and Sicard [7] in independent communications, were the first to describe the technic of epidural injections and its application in cases of so-called radicular sciatica. Here, again, it was quite evident that these investigators evidently ignored or were unaware of the relation between orthopedic conditions and sciatic pain. We have particularly studied the radicular forms of sciatica and found that, with the exception of isolated cases of syphilitic etiology, they are invariably due to spondylitic disease or malformations of the lumbar vertebrae.

The new method of epidural injections, however, found instant favor and was extensively used by the French. The results reported were phenomenally successful, Feuillade,[8] for instance, reporting 80 per cent. of cures. The Germans were evidently equally satisfied with their results in the perineural form of therapy as advocated by Schleich and Lange, and reported, according to Bum,[9] over 72 per cent. of cures. Stimulated by these glowing reports of successes and with an ever increasing number of cases of sciatica on our hands in which we were unable to affect an amelioration of symptoms, we decided to give the injection methods a trial. Fifty cases were studied and grouped and made the subject of a report.[1] In brief, our results were disappointing, and in no way approached the figures as reported by Feuillade and Bum. We could boast of only 20 per cent. of cures, in spite of the fact that a majority of these patients had received orthopedic treatment besides the injections. Mention is made of this point because, as far as we are aware, no orthopedic measures were applied in the foreign clinics, the main reliance being placed on the injections for curing the patient. Indeed, it was our belief, but not expressly stated in our report, that the few good results obtained were in a large measure due to the orthopedic treatment and not to the injections.

At a subsequent date, Ott [9] of the Mayo Clinic referred to our disappointing results in relation to his own, and in a series of forty-eight cases of sciatica treated by repeated epidural injections combined with removal of possible foci of infections, corroborated our findings in the main. His figures were: permanent cures, 29 per cent.; improvement, 37 per cent.; failures, 34 per cent. He further states that he is uncertain of the relative merits of the injections or removing of foci in producing beneficial results.

In order to explain to ourselves the high number of cures in the cases of Feuillade and of Bum, we made a critical study of their material and found that the majority of their patients—particularly in Fenillade's series—were soldiers exposed to the rigors of warfare and trench life, and in whom an infectious radiculitis of the sciatic roots was postulated.

In the light of these facts, one can readily understand the ready response of these cases to injection therapy. Scant reference is made of cases of sciatica of orthopedic origin. Evidently foreign observers consider the relation between orthopedic affections and sciatica a minor one. Our material is recruited largely from civil life, in which the factors of trauma, strain and infections are of an entirely different nature and which obviously necessitate a different method of therapeutic approach. These facts, it seems to us, explain the striking differences in the results obtained by the epidural and the perineural injections. Since our unfavorable experience with the injection treatments, a relatively new and successful therapeutic procedure has been evolved and applied in cases of intractable sciatica. To Baer [10] belongs the credit for bringing this method of treatment before the profession, although Cofield,[11] in a later paper, asserts that he had used it several years prior to the date of Baer's publication. They have both termed it the manipulative treatment.

SCIATICA OF ORTHOPEDIC ORIGIN

Before proceeding with a description of the technic of manipulation, it may be opportune to speak of a classification which we have attempted in cases of sciatica of orthopedic origin. The treatment varies somewhat in each instance as follows:

Static Cases.—These are recognized by weak feet, hollow lumbar spine, pendulous abdomen, general lack of muscular tone, and vague sciatic pains. Supportive measures are best in these types, including proper orthopedic shoes, elevated on the inner side, and corsets constructed to support the relaxed or pendulous abdomen and to diminish the lumbar lordosis. Preference is given to the plaster-of-Paris corset, applied in a Sayre suspension apparatus, which can be changed

5. Schleich and Lange, quoted by Ott, W. O.: Results of Treatment in Forty-Eight Cases of Sciatica, Ann. Surg. **70**: 272-277 (Aug.) 1922.
6. Cathelin, F.: Une nouvelle voie d'injection rachidienne; méthode des injections épidurales par le procède du canal sacré: applications a l'homme, Compt. rend. Soc. de biol. **53**: 452-453, 1901.
7. Sicard, A.: Les injections médicamenteuses extra-durales par voie sacrococcygienne, Comp. rend. Soc. de biol. **53**: 396-398, 1901.
8. Feuillade, H.: Traitement des névralgies sciatiques par les injections épidurales, Lyon méd. **134**: 933-939, 1920.
9. Bum, A.: Neue Beiträge zur infiltrationsbehandlung der Ischias, Med. Klin. **14**: 875-877, 1918.
10. Baer, W. S.: Sacro-Iliac Strain, Bull. Johns Hopkins Hosp. **28**: 159 (May) 1917.
11. Cofield, R. B.: Symptoms Attributed to Lesions of the Sacro-Iliac Joints, Am. J. Orthop. Surg. **16**: 418 (Nov.) 1918.

in several days to an open corset, added corrective force being obtained by excising a 1 to 2 inch strip in front, inserting hooks and lacing tightly. This is augmented by instituting massage, electricity and graduated exercises to the weakened feet, and the abdominal and spinal muscles.

Traumatic Cases (acute).—These are recognized by sudden onset following injury direct or indirect, pain usually in one sacro-iliac region and extending downward along the course of the sciatic nerve, flattening of the lumbar spine, listing to one side, Kernig's sign, etc. This group is treated by rest in bed and support beneath the lumbar spine and the affected knee, followed by strapping the back with adhesive plaster or preferably by a plaster jacket as previously described, forcing the spine into hyperextension.

Chronic Cases.—These include the previously mentioned types that have not responded to the treatments described. This group, in spite of conservative methods of treatment over a prolonged period, fails to respond in the slightest degree. It is recognized by a chronic course with frequent acute exacerbations, intense suffering, weakness in the lower spine, severe sciatic pains, spasm of the lumbar and hamstring muscles, and scoliosis. These patients are destined to prolonged invalidism, and cannot pursue their vocations. In this group the treatment *par excellence* is the manipulative treatment of Baer and Cofield. The technic of the operation is as follows: The patient is placed on a solid, nonmovable table, flat on his back, and is anesthetized to the point of complete muscular relaxation. Two assistants firmly hold down each side of the pelvis. The operator grasps the unaffected limb with one hand in front of the knee, the other above the heel. The hamstrings on the normal side are usually found slightly contracted. Gradually increasing force is then exerted in an anteroposterior plane, all rotary movements being avoided. This force is continued until the hamstring tension is overcome—Kernig's sign being negative. The affected limb is then grasped, in which the hamstrings are usually found in a state of marked contraction. Force is now exerted in an anteroposterior direction until the toes are approximated to the shoulder of the same side. Usually a distinct click is heard, which is a signal that the muscles have been sufficiently stretched.

Various interpretations have been ascribed to this phenomenon. Goldwaith and Osgood declare that it is due to a replacement of the displaced sacro-iliac joint. Baer thinks it is due to a slight subluxation of the head of the femur as it is pushed against the hamstrings while the leg is in extreme flexion. Our own opinion is in accord with that of Cofield, who thinks that it is due to a sudden tearing of the hamstrings near their attachment. It was not uncommon in our group to see large ecchymotic spots at both the origin and the insertion of the hamstring, due undoubtedly to torn muscle fibers. Following the complete stretching, a stockinet shirting is applied, and the patient is turned face downward across two tables about 3 feet apart, one assistant holding the legs, the other the shoulders; the operator forces the lumbar spine into complete hyperextension, and pressure is exerted over the affected sacro-iliac joint. Felt padding is inserted, reaching from the mid-dorsal region as far down as the great trochanters, and a strong plaster jacket is applied, the hyperextension maintained by two bent steels. When hardened, the plaster is trimmed and the patient returned to bed either in the prone or the supine posture—in the latter position, a pillow being placed under the lumbar curve. This case is worn for about two weeks, and on removal either a short open plaster jacket is substituted or a sacro-iliac corset. The latter should be worn for protection at least a year, the patient being warned to avoid undue muscular exertion.

The after-treatment consists of baking, massage and graduated exercises to increase the muscular tone. The results of this method of treatment are exceedingly gratifying. Baer states that in 100 cases manipulated, immediate relief was obtained in almost every case, there being only three relapses. Our own observations in a similar series show favorable results in all cases of sciatica due to static disturbances or traumatic lesions of the sacro-iliac joints. The sciatic pains are relieved in from twenty-four to forty-eight hours. On only two occasions was an additional stretching (under anesthesia) necessary. In our early cases, we noticed a tendency in about 25 per cent. of the cases for the hamstrings to recontract, with occasional recurrence of sciatic pain. Since the procedure of forcibly stretching the affected limb daily, following operation was instituted there have been fewer relapses.

To what are the remarkably good results attributed in the cases in which manipulation or stretching has been done? We feel that besides the possible replacement of the subluxated sacro-iliac joint (for, according to Goldthwait,[12] Albee [13] and others, the sacro-iliac articulation has all the elements of a joint and therefore a similar pathology) and the forcible tearing of contracted muscles which theoretically impinge on the nerve, or actually stretching the sciatic nerve and its influence in relieving the pain must be considered. Just how traumatizing the nerve by stretching relieves painful impulses cannot be answered—satisfactorily at least—at this moment, for it will bring us into conflict with those cases of sciatica due to inflammatory disease of the lumbar spine and sacro-iliac articulation in which stretching of the nerve is apparently of no avail.

Inflammatory Cases.—Sciatica due to inflammations of the sacro-iliac joints, lumbosacral joints or lumbar vertebrae do not respond to this method of procedure, and account for the few failures we have experienced. In fact, the symptoms are often aggravated by forcible stretching, and we now consider this group a distinct contraindication. The proper method of treating these patients consists of rest, support to the spine, removal of foci of infections, antirheumatic medications and local treatments, such as baking and high frequency currents with cataphoresis. Those failing to respond are best treated by ankylosing operations. The contraindications to the manipulative treatment therefore are: (1) inflammation of the spine; (2) tuberculosis of the spine; (3) fractures or dislocations, and (4) tumors (cystic or malignant).

In our series, we have had no serious complications. The danger of fracturing or dislocating the femur is overcome by stretching only in an anteroposterior plane, avoiding rotary force. Care should be taken to exclude such possibilities as cysts, tumors or osteoporotic diseases of the bones of the lower extremities and spine.

Attention must again be called to the possibility of traumatic palsies following stretching or manipulation. Two such instances have been observed by us, as previously mentioned.

12. Goldthwait, J. E.: The Pelvic Articulations, J. A. M. A. 44:768 (Aug. 31) 1907.
13. Albee, F. H.: A Study of the Anatomy and the Clinical Importance of the Sacro-Iliac Joint, J. A. M. A. 53:1273-1275 (Oct. 16) 1909.

SUMMARY AND CONCLUSIONS

As a result of the clearly established fact that the true sciatic syndrome is the product of pathologic changes in the lumbar or pelvic articulations, the rationale of orthopedic measures becomes apparent. The poor results, then, that follow the injection method also become apparent, since they attack the consequences of the affection and not the origin. Although injections may be of service in certain selected cases, they have not had the success in our hands that foreign and some American enthusiasts have claimed for them. These facts have been corroborated in part by an important clinic and medical center in this country. We can, however, endorse without hesitation the stretching or manipulative treatment. In properly selected cases of true sciatica due to static or traumatic sprains of the sacro-iliac joints, we possess a definite curative agency. The permanence of the cure depends on the proper after-treatment and the avoidance of faulty attitudes and additional trauma.

370 Central Park West—123 West Eighty-Sixth Street.

PLANTAIN HAY-FEVER AND ASTHMA

HARRY S. BERNTON, M.D.
Associate Professor of Hygiene, Georgetown University School of Medicine; Special Expert, United States Public Health Service
WASHINGTON, D. C.

The members of the plantain family in the United States, notably *Plantago lanceolata*, fulfil all the requirements of hay-fever plants. Despite this fact, their relationship to hay-fever has received only passing attention from American investigators. It is my purpose to record here the incidence of hay-fever in the District of Columbia and vicinity due to *Plantago lanceolata*, commonly known as rib grass or English plantain.

The literature of the subject may be briefly summarized: Hall [1] lists *Plantago lanceolata* among the hay-fever plants of California. He adds that it is "of first rank in Oregon and Washington," and that Chamberlain, Scheppegrell and Selfridge have reported positive reactions. Likewise, Watson and Kibler [2] enumerate the family of *Plantaginaceae* among those plants capable of producing hay-fever in the Southwest; whereas in Scheppegrell's [3] revised classification the plantains constitute one of the five minor groups of hay-fever plants. Mullin [4] records the dates of the first and last pollination of the English plantain observed in Colorado during 1921 and 1922. This author, however, does not include in his table any hay-fever subjects sensitive to the plantain pollen. Eggston [5] of New York makes casual reference to the plantains, in a discussion of vernal hay-fever. He states that 97 per cent. of his patients sensitive to grass pollens have shown multiple sensitizations. "The most common grasses," he writes, "have been June grass, timothy, orchard grass, red top, and plantain." The author does not cite the number of patients who have reacted to the pollen of the plantains. It must be added, however, that it is erroneous to include the plantains with the grass family. There is no close relationship between *Gramineae* and *Plantaginaceae*.

The following description of *Plantago lanceolata*, taken from Scheppegrell's [6] table of "plants tested for hay-fever reaction at the Biological Laboratory of the American Hay-Fever Prevention Association," is one of timely interest: "Principal common name, lance-leaved plantain. Surface of pollen, smooth spherical. Size in microns, 13. Hay-fever reaction, mild. Pollination, wind and insect. Amount of pollen, medium. Season of bloom, April to November. Geographic distribution, Northwest Florida and Kansas. Remarks: Occasional cause of mild hay-fever."

It is noteworthy that Walker [7] does not include the plantains among causes of hay-fever in the New England states. Moreover, no mention is made of the plantains by Duke and Durham [8] in their botanic survey of Kansas City, Mo., and neighboring rural districts, nor by Kahn [9] in the flora of southwestern Texas with reference to hay-fever. Indeed, *Plantago lanceolata* finds no place among either the principal or the minor causes of the disease in the District of Columbia as listed by Scheppegrell [6] in his geographic distribution of hay-fever.

Plantago lanceolata, it will be indicated, is by no means a negligible hay-fever factor in the District of Columbia and vicinity. Accordingly, the following data, kindly furnished me by Dr. B. T. Galloway, plant pathologist of the United States Department of Agriculture, assume an interest and importance both medical and botanical:

Plantago lanceolata (rib grass or English plantain) has been introduced from Europe and is common in the thickly populated sections of the eastern United States. It is found more or less all over the United States, but is thinly scattered in many sections. *Plantago lanceolata*, like the English sparrow, seems to stick closely to the thickly populated sections. It is found abundantly along streets in the outskirts of cities, on vacant lots and dump heaps; producing pollen in great abundance from about May 10 to August 1. The plant is not common in the South, and is rather thinly scattered in the Middle West and Pacific Coast states. In the District of Columbia and adjacent states the plantain is very abundant, ranking with a number of the grasses in pollen production. The pollen grains of plantain are relatively small, and are easily carried by the wind. There are special adaptations for getting the pollen into the air. When flowering begins, a ring of anthers appears at the base of the head. The anthers, containing millions of pollen grains, are supported on long, slender pedicles or stalks. They are hung in such a fashion that the lightest jar shakes them, and the pollen floats out into the air. The greatest production of pollen takes place during a quiet, warm night when humidity is high. Following such a night, anthers gorged with pollen push out from the parent head. The first light morning breeze wafts the pollen grains away, so that by 9 or 10 a. m. they are usually scattered into the air. One or two plants will furnish sufficient pollen to infect half a hundred people; so when we find the plants by thousands and millions flowering in our back yards, it shows how great are the sources of trouble. The production of pollen in this plant and many of the grasses is periodic; that is, there will be conditions resulting in immense quantities of pollen being found one morning, and then several days may elapse before there is another big supply. If the mornings of heavy production are

1. Hall, H. M.: Hay-Fever Plants of California, Pub. Health Rep. **37**: 803-822 (April 7) 1922.
2. Watson, S. H., and Kibler, C. S.: Etiology of Hay-Fever in Arizona and the Southwest, J. A. M. A. **78**: 719-722 (March 11) 1922.
3. Scheppegrell, William: The Immunological Classification of Common Hay-Fever Plants and Trees, New York M. Journal & M. Rec. **117**, June 20, 1923.
4. Mullin, W. V.: Pollen and Hay Fever—A Regional Problem, Tr. Am. Acad. Ophth. and Oto-Laryngol., 1922.
5. Eggston, A. A.: Allergic Reactions of the Upper Respiratory Tract, J. A. M. A. **83**: 1221-1224 (Oct. 18) 1924.
6. Scheppegrell, William: Hay-Fever and Asthma, Philadelphia, Lea and Febiger, 1922.
7. Walker, I. C.: Frequent Causes and the Treatment of Seasonal Hay Fever, Arch. Int. Med. **33**: 71-118 (July) 1921.
8. Duke, W. W., and Durham, O. C.: A Botanic Survey of Kansas City, Mo., and Neighboring Rural Districts, J. A. M. A. **82**: 939-944 (March 22) 1924.
9. Kahn, I. S.: Botany of Southwest Texas, with Reference to Hay-Fever and Asthma, J. A. M. A. **82**: 871-874 (March 15) 1924.

followed by a cool, dry northwest or west wind, great quantities would be lifted into the air. If rain comes in early morning, much of this pollen is carried into the ground. Hay-fever, therefore, is likely to be more severe following a heavy production of pollen accompanied by a cool, dry wind. The evidence at hand would seem to indicate that it requires a considerable saturation of pollen to produce hay-fever in most cases. This explains why a change of location may be beneficial even though the causative pollen may be found in limited quantities. In all cases there is a peak in pollen production, and these peaks correspond with the peak of the disease. For plantain the peak is reached in the District of Columbia about June 1 to June 10.

TABLE 1.—*Group of Patients Tested with Pollen of Plantago Lanceolata*

Type of Hay-Fever	Cutaneous Reaction to Pollen			Per Cent. of Clinical Reactors
	Positive	Negative	Total	
Spring	0	2	2	0
Vernal	4 (+3)	17	21	19.0
Combined (vernal and autumnal)	1 (+3)	22	23	4.3
Autumnal	0 (+2)	62	64	0
Total	5 (+8)	103	116	4.3

A study of a recent series of 116 hay-fever subjects has shown that the pollen of *Plantago lanceolata* has been responsible for symptoms of the disease in five patients, or 4.3 per cent. of the total number. Table 1 indicates the number of positive and negative cutaneous reactions with the pollen of the English plantain that have been found among the various types of hay-fever subjects tested.

The numbers in parentheses denote the patients who, despite their cutaneous sensitiveness to the plantain pollen, have remained clinically immune. I have termed this type of cutaneous reaction "accessory or secondary reaction," in contradistinction to the "group reaction" which is generally recognized. The significance and interpretation of multiple skin reactions has been discussed in another paper.[10] Moreover, eighty-six patients other than those possessing pollen sensitiveness have been tested with the pollen of the English plantain with negative results.

In the series of the five patients clinically sensitive to the plantain pollen, subsequent tests with the pollen have confirmed the initial positive reactions. Intracutaneous tests with 2 pollen units of the extract of the plantain pollen have yielded characteristic urticarial wheals.

The clinical features of the series are embodied in Table 2. In Patients 1 and 2, symptoms make their first appearance about the middle of May and continue for a period of eight weeks. Patient 3 is unusually sensitive. Her symptoms appear about May 1, which is at the very beginning of pollination, and terminate the latter part of October, which marks the absolute cessation of pollination of the English plantain. In this patient cutaneous and intracutaneous tests with the pollens of the short and giant ragweed have proved negative. Patient 4 is less sensative. She suffers from a mild form of the disease for a period of six weeks beginning June 1, which marks the peak of pollen production. A high concentration of pollen in the air is necessary for the production of symptoms in her case.

Patient 5 is a victim of perennial asthma. He reacts cutaneously and intracutaneously not only to the pollen of the English plantain, but also to the pollens of the short and giant ragweeds. He represents a type of person in whom only the cells of the lower respiratory tract are sensitized to the offending pollen protein. The subcutaneous injection in the upper arm of 5 pollen units of an extract of plantain pollen has caused a diffuse swelling of the arm that has made his coat sleeve feel tight.

The evidence is at hand that the subcutaneous reaction with a small quantity (from 3 to 8 pollen units) of a potent pollen extract is a more specific and diagnostic test than the cutaneous or intracutaneous reactions. The subcutaneous reaction to pollen protein approximates more closely the sensitivity or reactivity of mucous membranes to that protein.

It is therefore of interest to note that in Patient 1 the subcutaneous injection of 3 pollen units of extract has caused an area of redness about the size of a dime (diameter, 18 mm.), whereas 8 pollen units has produced a swelling the size of a twenty-five cent piece (diameter, 25 mm.), and 15 pollen units a swelling 2½ by 1½ inches (63 by 38 mm.). The initial injection of 3 pollen units in Patient 2 has likewise produced a marked local reaction, consisting of an area of redness 2 inches (50 mm.) in diameter: 8 pollen units has created a swelling 1½ inches (38 mm.) in diameter, at the site of inoculation. Patient 3, it will be recalled, has been most sensitive. In her case, 3 pollen units has given rise to a swelling the size of a five-cent piece (22 mm.), and 8 pollen units to a swelling 4 inches (100 mm.) in diameter. Finally, Patient 4 has reported a swelling the "size of a hen's egg," following the subcutaneous injection of 5 pollen units of the extract.

Desensitizing treatment has been administered to three of the five patients sensitive to the English plantain. In consequence, each patient has experienced the most comfortable season since the advent of the periodic distress, the percentage of relief from symptoms being, respectively 98, 90 and 85. Table 3 presents a summary of the course of treatments and results. The first treatments have been administered about three weeks prior to the usual date of onset of symptoms. Of necessity, the treatments have been both preseasonal and seasonal. The intervals between injections have varied from one to three days, depending on the character of the ensuing reactions. At times, longer intervals have intervened because of conditions beyond control, such as absence from the city.

TABLE 2.—*Clinical Summary*

Patient	Sex*	Age	Duration of Disease, Years	Dates of Onset and of Termination	Number of Pollens Used in Test	Comment
1	♂	61	13	May 20-July 20	9	Disease severe; asthma complicating
2	♂	23	9	May 15-July 15	13	Disease very severe; some seasons; no asthma
3	♀	42	3	May 1-October	14	Disease prolonged and severe; cough and tightness of chest
4	♀	44	14	June 1-July 15	13	Disease mild; some wheezing
5	♂	26	5	Perennial	15	Perennial asthma; no hay-fever symptoms

* In this column, ♂ indicates male; ♀, female.

Emphasis must be placed on the employment of a potent pollen extract both for testing and for treatment in order that satisfactory results be obtained. My method for extracting pollen protein is a modification of Coca's method. According to Armstrong and

10. Bernton, H. S.: The Significance of Multiple Skin Reactions Observed in Hay-Fever Subjects, to be published.

Harrison,[11] the method yields a "stable, potent, specific, bacteria-resisting" product.

REPORT OF CASE

The report of Patient 1 is presented for its many interesting observations:

A man, aged 61, residing at Washington, D. C., noticed the first evidence of hay-fever in 1911, when 48 years old. The attack came in early June, after a month spent in England. It returned in a more severe form in 1912, beginning about May 20 and lasting until July 20 or 25. The last two weeks of the attack were accompanied by asthma, especially at night and in the early morning; the asthma was aggravated by increased humidity and a drop in the temperature, especially after rain. The disease returned in a severe form in 1913 and in 1914, and each time between May 20 and 25. In July, 1914, he moved to Ithaca, N. Y., and found that the hay-fever persisted there until about August 10. In no instance, however, did the hay-fever pass over into the autumnal form.

The patient consulted several medical authorities and searched medical literature, with the result that the evidence seemed to point to some of the grass pollens as the causative agent. In 1915, after the disease had been under way for three or four weeks, he went from Ithaca to Cranberry Lake, N. Y., in the Adirondack Mountains. Orchard grass, timothy and some other grasses were in bloom in Ithaca at the time of leaving. The hay-fever symptoms rapidly disappeared at Cranberry Lake, although there were grasses in bloom there at the time. In July, 1916, he returned to Washington.

TABLE 3.—*Summary of Preseasonal and Seasonal Treatment*

Patient	Period of Treatment	Initial Dose of Pollen Units	Terminal Dose of Pollen Units	Number of Injections	Total Pollen Units	Percentage Relieved
1	April 22-July 11, 1924	3	300	26	5,688	98
2	April 21-June 28, 1924	3	1,000	27	9,751	90
3	April 22-June 16, 1924	3	190	25	1,749	85

The hay-fever was severe that year, lasting well into August. In 1917, he took a series of treatments with a mixed grass commercial pollen extract. These began after the first attacks, and were ineffective.

In 1918, 1919 and 1920, he had the usual attacks. In 1921 he went to Florida, April 1, and remained there until May 1, then returning to Washington. May 10, he went to southern California and was there during the summer and following winter. Although there was plenty of grass in the region where he located, he had no symptoms of hay-fever. He returned to Washington in May, 1922, and had a mild attack. In 1923, he made a systematic effort to prevent the disease by treatment with grass pollen extracts. Tests made in early April in the usual way showed slight reaction to sweet vernal grass pollen extract and orchard grass pollen extract. On the strength of these tests, treatments were made three times a week, beginning the first week in April and continuing until June 15. No benefit was noted. No asthma appeared, but asthma had been absent for three years previous.

In 1924, he spent February, March and ten days of April in southern Florida. He returned to Washington, April 15. There were no symptoms of hay-fever while he was in Florida.

April 20, 1924, I made tests with five grasses, also ragweed, dock, chenopodium and plantain pollen, the last being pollen of the common rib grass, *Plantago lanceolata*. Skin scratch tests were made, also subcutaneous tests. There was no special reaction except from the plantain pollen extract. Here reaction was unmistakable, much more marked than anything ever experienced with grass pollen inoculations. Treatment with the plantain pollen extract was begun, April 23, 1924, starting with 5 pollen units. Even with this small dose there was decided reaction, involving itching, swelling and reddening of the skin. Treatments were continued daily for a time, the dosage being gradually increased. In more than 90 per cent. of the treatments there were marked reactions, in some instances constitutional effects, including sneezing and eye watering, being noted. In the major portion of the treatments, swelling and redness persisted for from twenty to thirty hours. The dosage was gradually increased until 270 pollen units was administered. Notwithstanding the fact that, through the latter part of April and May, close contact was made with grass pollens, no effects were noted. In a number of instances grass pollen was gathered, this being accomplished by stripping the pollen with finger and thumb. Although the hands became covered with pollen grains, there were no effects noted.

The first plantain flowers appeared, May 6. The heads were scattering, however, only a few being noted in the warmer parts of the city. The quantity of plantain pollen gradually increased until May 25, when there was a very heavy bloom noted in many parts of the district, and especially near the home of the patient in Takoma Park. May 25 he spent considerable time bagging plantain plants, collecting plantain pollen, and May 26 there was a pronounced attack of hay-fever. This persisted for two days and then cleared up, something the patient had never before experienced. Thereafter there were occasional mild attacks until about July 10, after which there were no more symptoms. Notwithstanding the season was an unusual one so far as the production of plantain pollen was concerned, the effects of hay-fever were practically negligible, the summer being the most comfortable one the patient had experienced in twelve years. He would place his case as about 98 per cent. free of disease.

The discovery of the plantain pollen as the causative agent of the disease fits in with his experience in the Adirondack Mountains and California, where there were very few plantains growing.

SUMMARY

1. Five, or 4.3 per cent., of a series of 116 hay-fever subjects in the District of Columbia and vicinity have been proved sensitive to the pollen of *Plantago lanceolata*.

2. Four, or 16.6 per cent., of twenty-four patients subject to the vernal type of hay-fever are sensitive to the plantain pollen. The fifth patient is included in a total of twenty-six who are subject to the vernal and autumnal forms of the disease.

3. Three of the five hay-fever subjects sensitive to the English plantain have been given preseasonal and seasonal tratments with an appropriate potent pollen extract, the percentage of relief from symptoms being, respectively 98, 90 and 85.

CONCLUSIONS

The limited references in clinical reports create the impression that the plantains are unimportant as causes of hay-fever. Because of the wide ditsribution of the plantains throughout the United States, cutaneous tests for the determination of the pollen or pollens responsible for hay-fever and asthmatic symptoms should include the pollen of *Plantago lanceolata*.

2013 O Street N.W.

11. Armstrong, C., and Harrison, W. T.: A Study of Ragweed Pollen Extracts for Use in the Treatment of Ragweed Pollen Hypersensitiveness, Pub. Health Rep. 39:2422-2428 (Sept. 19) 1924.

Train Students' Powers of Observation.—The clinical teacher cannot attempt in the time at his disposal, even admitting that he has the knowledge and ability to do so, to give the undergraduate an exhaustive knowledge of the very varied features of disease. Our aim should be to educate his powers of accurate observation and judgment rather than to fill his mind with facts, to see to it that he acquires a knowledge of the methods we employ, to train him to think in terms of disease as met with in the living patient, to instil in him general principles, to show him how to deal with patients, to teach him accuracy of thought and expression, and last but by no means least, to kindle his enthusiasm.—Bramwell, Edwin: *Lancet* 1:267 (Feb. 7) 1925.

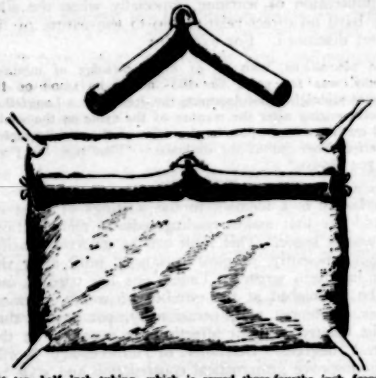
Clinical Notes, Suggestions, and New Instruments

AN IMPROVED AND SIMPLE OPERATING MASK

ELLICE McDONALD, M.D., PHILADELPHIA
Assistant Professor of Gynecology, Graduate School of the University of Pennsylvania

Lecturing during an operative clinic is difficult at the best, and is made more difficult by the voice being muffled by a mask. The ordinary gauze mask is a smothering affair, and the alternative, a wire chloroform mask type that hooks over the ears, is cumbrous.

I have found that it is possible by sewing a strip of half inch rubber tube at the top of the mask, three-quarters inch from the upper border, to make a comfortable mask, which is yet simple. The rubber should be tied in the middle by a penetrating suture three-quarters inch from the angle. This suture is tied around the tube, and it maintains the angle and spring of the tube. The tube is then sewed to the material



At top, half inch tubing, which is sewed three-fourths inch from the top of the mask, as in the lower illustration. The mask measures 5 by 6 inches.

by stitches, one at each end and one in the middle. The cloth should be a little larger than the usual mask. The mask is tied on by four tapes exactly as the usual mask is, and will allow ease of speaking and breathing.

NEW RULING FOR HEMACYTOMETER CHAMBERS

LEWIS V. JUDSON, WASHINGTON, D. C.

In the United States, the use of the Neubauer ruling shown in Figure 1 has been rather general for hemacytometer chambers. Professors in medical colleges, however, have had more or less difficulty in teaching the student to make the correct count because of the extra lines, which were originally added for the purpose of making the principal subdivisions of the central square millimeter area more readily discernible. Actually, these extra lines have led to confusion, resulting in erroneous counts, and the Neubauer ruling has not, therefore, been an unqualified success.

A new type of ruling, shown in Figure 2, a modification of the Neubauer, was recently submitted to the Bureau of Standards for test. This new ruling clearly defines the boundaries of the major subdivisions, and it would appear to possess an advantage to the physician using the instrument in the diagnosis of disease, because of the greater certainty with which the proper areas can be discerned in making the blood count. The laboratory standardization of this ruling can be made with a precision that is certainly equal to that made with the older type.

As shown in the accompanying illustrations, the essential feature of the new ruling is the use of double lines to mark out the twenty-five principal squares which altogether form a square, one millimeter on a side, in the central part of the whole ruling. Where the double line occurs, the center of the transparent portion between the two opaque lines is the

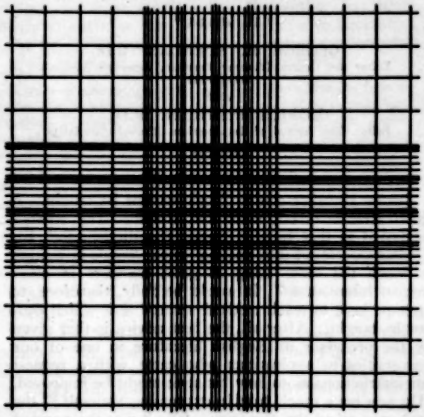


Fig. 1.—Original Neubauer ruling.

boundary line of the squares 0.2 mm. on a side, these squares are further subdivided into sixteen squares by the usual single lines. In the case of one of these chambers, the measurements made in the laboratory showed that the two lines were each 0.0025 mm. wide, with a clear space 0.002 mm. wide between them. The side of each of the smallest squares is 0.050 mm.

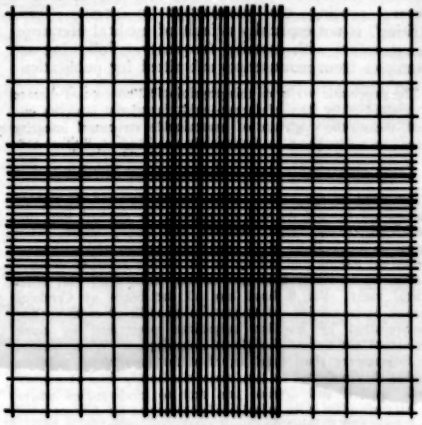


Fig. 2.—Improved Neubauer ruling.

The ruling has distinct advantages over the ordinary Neubauer ruling because of its being less complex and less likely to give mistakes in the counting of the corpuscles. The rulings may be made so that the accuracy of standardization is high, and the method may prove to be applicable to other sorts of ruling.

Special Articles

THE ART AND PRACTICE OF MEDICAL WRITING

II. STYLE *

GEORGE H. SIMMONS, M.D.
Editor and General Manager Emeritus, American Medical Association
AND
MORRIS FISHBEIN, M.D.
Editor, The Journal of the American Medical Association
CHICAGO

(Continued from page 893)

James Huneker said: "Style cannot be taught. A good style is direct, plain and simple. The writer's keyboard is that humble camel, the dictionary." Sir Quiller-Couch put it in another way: "Style in writing is much the same thing as good manners in other human intercourse." It would be folly, therefore, to attempt here to teach medical writers that which cannot be taught. After all, the best advice is that given by the professor of English literature in one of our universities to a physician who came with a request for instructions as to how his style might be improved. "Do you have much trouble expressing yourself?" the professor asked the physician. "No," was the answer. "No," commented the professor, "you just talk along and tell what you have seen and what you think. That's your style, as you talk; write that way."

FINE, OR FANCY, WRITING

Whenever one feels an impulse to perpetrate a piece of exceptionally fine literature, one should obey it whole-heartedly, but should delete what he has written before sending the manuscript to press. "Fine writing" is not especially a fault of medical literature, yet it occurs with amazing frequency. Following are examples from manuscripts submitted for publication:

> The pragmatic verity of this physiological concept of disease is established by its usefulness:—with functional integrity our goal, the no-thoroughfare of unattainable structural integrity leaves us no longer at a therapeutic non-plus.

Quite remarkable, but it doesn't mean anything.

> But what of the child? Who has championed its rights? Summoned against its will or without its consent into this world of trouble, pain, sickness and finally death, what Rousseau or Voltaire shall sound the tocsin, and call upon the infant muling and puking in the nurse's arms, to demand that its own mother shall give it that lactic fluid that is its primal right. Bid it howl like all the heads of Cerebrus against being condemned to partake of milk of cerulean hue contaminated by Bacillus bulgaricus prescribed by some adolescent and ardent disciple of Aesculapius. What Danton or Robespierre shall band together the sansculotte toddlers so that they may not be torn from the kindly face of mother earth, washed and dressed and sent to kindergarten where all of their play is so scientifically arranged by followers of Pestalozzi and Froebel that good fairies are unknown to them, and a "primrose beside a mossy bank, is to them but a primrose, nothing more." Where they are taught, like the clown in Lady Browning's poem, "to pick simples, turning a broad back to the glory of the stars."

The author meant it seriously: It was a presidential address before a serious gathering.

> The specificity and mathematical exactness of its effects in given dosages of which Ehrlich dreamed has gone glimmering among the pitfalls of spirochetal individuality and variation in human susceptibility.

Here the error is not so obvious; it lies in the use of words which sound extraordinarily well but which do not apply, and therefore are confusing. Note "glimmering" and "pitfalls."

A florid, roseate style, full of polysyllabic, metaphorical phraseology, distracts the reader's attention. Seldom is it necessary in scientific writing to use other than simple, Anglo-Saxon terms to express an idea or to state a fact. The medical reader is acquainted with technical terms, but advantage should not be taken of this to make the sentences unduly polysyllabic. Particularly bad is the use of wrong literary allusions to give the impression of learning, especially when the allusions have no direct relationship to the nature of the subject discussed. For example:

> The neurologist, with all of his knowledge of minutest anatomy, was for years like the "man who stood on the bridge at midnight," not dreaming the dreams of a Longfellow but soliloquizing after the manner of the cynic on the vanity of all earthly things when, lo, the voice of the syphilographer first cried from out of the darkness: "Fear not, for I am with you always."

VERBOSITY

Verbosity is a blemish in the writings of most of us, and one that makes reading tedious, mars diction, and wastes space. This fault can be overcome easily, but not efficiently, in most instances, until after the paper has been written. Unless one has tried it, one will be astonished at the number of words, phrases, clauses, sentences and, occasionally, paragraphs that can be deleted without affecting the meaning in the slightest degree. Deletions of unnecessary words always improve grammatical construction and style of expression, and make reading with understanding easy.

Quiller-Couch devotes a chapter in "The Art of Writing" to verbiage. Here is one of his illustrations:

> A clerk of a Board of Guardians had to record a minute relative to the burial of a pauper. The minute reads:
> "In the case of John Jenkins, deceased, the coffin provided was of the usual character."

Sir Arthur pulls it to pieces. First, it is superfluous to tell us that Jenkins is deceased; the fact that he needs a coffin is sufficient evidence. Then, "In the case of" is superfluous, for Jenkins did not have a case; he had, and needed, only a coffin. Further, the coffin was not "of the usual character," for coffins have no character. The clerk of the Board of Guardians should have said: "John Jenkins was provided with the usual coffin."

Here are specimens from real life—from manuscripts submitted for publication in THE JOURNAL:

> I do not hesitate to say that in my opinion the gland in this case should not have been removed.

The first seven words are space takers; the author makes his statement, and the reader cares not whether he hesitated or did not hesitate in making it. In any event, "I do not hesitate to say that" was bracketed and deleted, and the better and shorter sentence, "In my opinion the gland in this case should not have

* This is the second of a series of articles. When concluded, these papers, together with additional material, will be published in book form.

been removed" was printed. "In my opinion" possibly might have been deleted.

This from another author:

It has been a mooted question in the minds of microbiologists whether the gonococcus possesses a capsule.

What difference there is in this case between a mooted question and one that is not mooted is problematical; "mooted" was deleted. "In the minds of microbiologists" carries the idea that only microbiologists are concerned. The sentence was improved by divesting it of verbiage and, when printed, it read:

It has been a question whether the gonococcus possesses a capsule.

The purist would have modified this still more and given the microbiologist a show, making it read: "Microbiologists question whether the gonococcus possesses a capsule."

This from another article describing an apparatus:

Physicians who have been using radium needles will readily appreciate the difficulties encountered in threading them.

"Who have been," "will readily" and "encountered" were deleted, and the sentence read:

Physicians using radium needles appreciate the difficulties in threading them.

The following is the introduction in a case report:

The following case is reported on account of the unusual occurrence of Ascaris Lumbricoides in an adult of sufficient quantity to cause obstruction of small intestine, necessitating resection of intestine.

Miss R. of A———, Ala., referred to me by Dr. M. S. of ———, age 36, single, admitted to the hospital at Albany, Ala., Nov. 6, 1922, suffering with intense pain in the abdomen, in the right hypochondriac region. She was a poorly nourished woman and suffering great shock and presented all the symptoms of an intestinal obstruction.

The first paragraph could be omitted by entitling the paper: "Ascaris Lumbricoides Causing Obstruction of Intestine: Report of a Case in an Adult Necessitating Resection."

The case report itself contains a large number of unnecessary words, from the point of view both of good writing and of facts necessary to adequate presentation. Bracketing the unnecessary words for omission, the report would appear:

Miss R., [of ———, Ala., referred to me by Dr. M. S. of ———] age 36, [single, admitted to the hospital at Albany, Ala.], was seen, Nov. 6, 1922, suffering with abdominal pain in the right hypochondriac region, [She was a poorly nourished woman and suffering great shock and presented all the symptoms of] apparently due to intestinal obstruction.

And this from a paper on carcinoma:

Personally I believe that sooner or later it will be generally recognized that the starting point of cancer occurs in some cell or cells, previously normal, probably as the result of local irritation, in which there is a deposit of some of the elements of faulty nitrogenous partition introduced by undue ingestion of normal protein, and that the malignant reproduction process in the cells is kept up by a continuance of the same supply of imperfectly disintegrated nitrogenous matter.

Here is a serious waste of words; moreover, the author invariably uses a long word when a shorter would be better. The sentence may also be criticized for faults of grammatical construction.

POOR GRAMMAR

The modern physician has presumably had the advantage of some university, certainly of a high school education. When, therefore, an editor receives a manuscript in which sentence after sentence reveals grammatical faults that would disgrace a seventh grade student, he must surmise that the author has been poorly educated or that he has failed to give his manuscript proper attention. It usually means carelessness.

Here are some examples from manuscripts:

Scabies is also a frequency with the negro, for he fails to realize the severity and the laxity of consulting a physician, resulting in rapid and wide dissemination of this highly contagious parasitic skin infection to others, and in many instances the starting of an epidemic.

Gonorrhea is extremely common due to the same attitude of mind in that same is not a disease requiring no treatment, but speaks of it as female trouble, and continues to journey along with his discharge until it has subsided, to return at a future time after it has become chronic.

The use of a syringe introduced with the plunger down and suction made at different depths should be done.

The publication of this article has been delayed by the unfortunate death of one of us.

It is not worth while to analyze these "horrible examples" of what a medical author may perpetrate. They are offered merely as exhibits, with the hope that the reader will be impressed with the necessity of reading each sentence of his own manuscript carefully to determine its grammatical purity. Long, involved, ungrammatical sentences make the sequence of ideas difficult or impossible to follow, and papers containing such writing are seldom read through to the end.

SLANG

Medicine is a dignified science. The attitude of the medical profession and of the public toward a scientific paper is largely dependent on the spirit with which the paper is written. Much of the dignity accruing to medicine today is dependent on the fact that physicians have always presented their contributions in language suited to the subject. Few editors will care to publish discussions of serious matters couched in a tone of levity. The following are examples from papers submitted to THE JOURNAL, indicating that the language of the street or of the preparation-room is not exactly suited to the discussion of surgical technic or medical practice:

We have long passed the stage where any operation is considered a success if the patient survives, and in this particular one, where lots of blood and two or three chunks of tissue extracted from the patient's pharynx means good throat surgery.

A surgeon may be a "whiz" in the abdomen or in grafting bones, but a proverbial "bull in a china shop" in the throat.

The G. U. man has appropriated the term "syphilis," but the fact that the initial lesion is frequently on the genitals does not make the disease other than systemic.

He will not attempt an iridectomy or cataract extraction, but seemingly feels "T. & A.'s" are "duck soup" where as a matter of fact the finished specialist realizes there is little difference in the skill required for all when well done.

ACQUIRING A GOOD STYLE

The formula for acquiring a good literary style has two ingredients: reading and practice. Extensive reading of the works of good writers will invariably increase the vocabulary and tend to improve the style.

A style that flows attractively from the pen comes only as the result of much practice. "A well constructed phrase," said Flaubert, "adapts itself to the rhythm of respiration." Clauses and phrases of even length permit proper emphasis. Consider in this connection the following sentence written by Sir William Osler, in an article on diphtheria:

> Known in the East for centuries, and referred to in the Babylonian Talmud, it is not until the first century, A. D., that an accurate clinical account appears in the writings of Aretaeus.

Write and rewrite, rewrite again, and then revise! But the revision of the manuscript is such an important subject that it must have a later chapter for itself.

(To be continued)

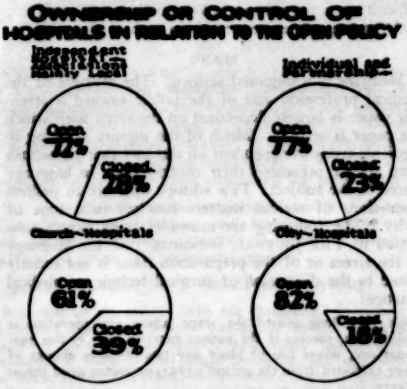
HOSPITAL FACILITIES AND THE MEDICAL PROFESSION IN THE UNITED STATES

HOMER F. SANGER

With the Council on Medical Education and Hospitals, American Medical Association

CHICAGO

The growth of hospitals in America has been greater in quantity and in capacity than it has in effectiveness. Hospitals have been built by certain groups in communities—and oftentimes for certain groups—rather than by and for the whole community. They have been built



by federal, state, county or city government as a matter of public charity; by churches and fraternal orders, not always without prejudice in favor of those who believe or who affiliate; by industries, usually for employees; by individual physicians, sometimes as an adjunct to their personal practice; by nurses and other laymen as a means of livelihood, and by independent local hospital associations, also sometimes restricted.

The information blank on which hospitals make routine reports to the Council on Medical Education and Hospitals asks, along with other questions, "What is your policy regarding the use of the hospital by physicians not on either the attending or the consulting staff?" This question was answered by 2,867 general hospitals that are supposedly free to determine their own policy. State and federal hospitals were not counted. The 2,867 replies that were received were nearly all signed by the superintendent or medical director or owner of the hospital.

TABLE 1.—*Policy of General Hospitals Regarding Physicians Not on Attending or Consulting Staff*

State	Open		Closed		Blank on Open or Closed		Total	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
Alabama	21	1,222	14	815	33	1,189	68	3,226
Arizona	10	338	7	201	11	281	28	1,320
Arkansas	24	889	13	770	13	926	50	2,585
California	170	8,588	67	7,305	144	8,597	381	24,540
Colorado	24	1,726	20	2,043	25	2,570	69	6,339
Connecticut	30	3,215	7	688	37	3,277	74	6,980
Delaware	...	...	...	...	4	339	4	339
Dist. of Col.	11	1,369	1	6	8	989	20	1,364
Florida	23	899	9	388	19	888	46	1,677
Georgia	30	1,875	7	779	31	1,382	67	4,706
Idaho	15	510	7	133	19	597	41	1,240
Illinois	231	9,898	89	4,888	140	22,770	460	37,556
Indiana	45	2,302	12	900	60	4,569	117	7,771
Iowa	71	3,028	16	729	62	3,189	159	6,946
Kansas	94	1,966	20	1,077	37	1,284	151	4,327
Kentucky	39	1,898	19	1,028	39	1,284	98	4,210
Louisiana	17	797	10	347	20	2,415	47	3,564
Maine	25	1,824	10	457	15	691	50	2,972
Maryland	19	1,989	9	2,900	12	1,412	40	6,301
Massachusetts	99	6,888	29	2,427	41	6,272	169	15,587
Michigan	73	3,814	36	2,488	70	4,469	184	10,771
Minnesota	55	2,889	44	4,082	80	4,068	179	11,039
Mississippi	10	488	6	288	20	702	36	1,478
Missouri	48	2,884	50	2,377	92	7,888	190	13,149
Montana	9	858	5	177	22	891	36	1,926
Nebraska	30	1,407	11	894	30	1,978	77	4,279
Nevada	11	289	3	82	1	3	15	321
New Hampshire	12	671	9	509	16	370	37	1,550
New Jersey	65	4,671	39	2,988	63	3,969	167	11,628
New Mexico	7	99	7	288	21	944	35	1,347
New York	114	10,542	77	15,249	223	39,746	414	67,537
North Carolina	29	2,143	29	1,884	42	1,207	100	4,234
North Dakota	10	708	3	98	10	282	23	1,088
Ohio	91	5,448	46	4,118	82	5,467	227	15,033
Oklahoma	40	1,888	9	488	22	979	70	3,460
Oregon	34	1,888	12	877	10	1,888	55	3,818
Pennsylvania	227	12,169	69	6,970	221	14,874	504	34,013
Rhode Island	6	1,107	7	1,888	8	788	21	3,888
South Carolina	14	677	9	188	20	1,888	43	1,888
South Dakota	17	644	8	184	11	709	36	1,587
Tennessee	38	2,881	18	1,888	25	1,888	81	6,888
Texas	49	2,845	28	2,888	49	2,897	126	8,888
Utah	18	878	8	197	8	1,188	28	1,888
Vermont	7	271	8	288	14	888	29	1,888
Virginia	17	1,888	18	1,888	28	1,888	68	3,888
Washington	41	2,888	18	878	24	1,888	83	5,888
West Virginia	19	1,888	14	748	15	888	47	2,888
Wisconsin	74	3,548	29	2,888	33	4,888	136	10,877
Wyoming	11	388	7	198	9	801	27	887
Totals	1,888	117,819	872	94,788	2,084	148,788	4,891	861,840

There were 2,034 additional hospitals that returned the questionnaire with other data, but made no answer to this particular question. Among the 2,867 hospitals that answered were 1,995 that are open for physicians not on the staff and 872 that are closed (Table 1). Counted among the closed are twenty-seven that welcome other physicians "when there is room," but do not say how often that is. Twenty are open to medical but not to surgical cases.

Among the characteristic answers of the "open" hospitals were:

All physicians welcome.
All legitimate doctors admitted.
All have same privileges.
All ethical physicians.
All accredited physicians.
Open for medical cases, and to surgeons of known ability.
Open to women doctors only.

The "closed" policy hospitals answered:

Our private hospital.
Not open.
Only for consultation.
The patient becomes ours.
Other physicians not allowed.

OWNERSHIP OR CONTROL OF HOSPITALS IN RELATION TO OPEN OR CLOSED POLICY

The answers from all the hospitals in six selected states were classified according to ownership or control to find out whether that has anything to do with its policy. The states selected for this analysis were Alabama, Colorado, Illinois, North Carolina, Pennsylvania and Virginia, and the results are given in Table 2.

TABLE 2.—*Ownership or Control of Hospitals in Relation to (a) Open and (b) Closed Policy*

	Independent Hospital Association	Individual and Partnership	Church	County	City	Fraternal	Industrial	Total
(a) Open Hospitals								
Alabama	10	17	1	0	2	1	0	31
Colorado	13	13	5	1	7	0	0	24
Illinois	68	44	27	0	9	2	0	121
North Carolina	8	9	3	0	3	0	0	23
Pennsylvania	97	35	20	2	3	0	0	157
Virginia	7	4	1	0	4	1	0	17
Total open	196	111	67	9	24	4	0	369
(b) Closed Hospitals								
Alabama	2	7	4	0	1	0	0	14
Colorado	9	5	3	0	2	1	0	20
Illinois	10	8	0	0	0	0	1	19
North Carolina	15	12	3	0	0	0	0	30
Pennsylvania	15	12	14	2	1	2	0	46
Virginia	10	2	1	0	1	1	0	15
Total closed	70	46	25	2	5	4	1	171

The figures for these six states show for each type of ownership what percentage of its hospitals reported they are open, and these probably would fairly represent the entire country:

1. Independent associations, 72 per cent.
2. Individual and partnership, 77 per cent.
3. Church, 61 per cent.
4. City, 82 per cent.

Not only are hospitals restricted by the groups that build and support them, but also, sometimes with good reasons, by the physician or group of physicians who may control the professional policy of the hospital.

Liberality on the part of agencies that are building and maintaining hospitals is increasing, for the reason most frequently assigned that they need the support of the community. A growing liberality on the part of the staffs of hospitals toward other physicians is made possible by the increasing number of physicians who have been trained in hospital methods.

TABLE 3.—*Physicians on Staffs of All Hospitals in Chicago (Including Evanston and Oak Park)*

Physicians on Staffs of General Hospitals:		
On one staff	1,040	
On two staffs	207	
On three staffs	85	
On four staffs	7	
		1,339
Physicians on Staffs of Special Hospitals:		
On one staff	84	
On two staffs	7	
		91
Physicians on Staffs of Special and also General		115
Total physicians reported on hospital staffs		1,554
Total physicians in Chicago and suburbs		5,655
Percentage listed on hospital staffs		28.0%

WHAT PROPORTION OF PHYSICIANS HAVE HOSPITAL CONNECTION?

Five years ago, the Council listed the physicians who were named on the staffs of hospitals in the United States, and they numbered more than 25,000. There were hospitals that did not send in their staff lists, and there were many physicians having hospital privileges who may not have been named on these official lists. Also, there are many more physicians affiliated with hospitals today than there were five years ago, as indicated by the increased number and capacity of general hospitals.

In New York City, with 8,769 physicians, 3,232, or 36.8 per cent., are affiliated with hospitals, and in Cleveland, 29 per cent. have affiliations.[1] In Chicago and its suburbs, 25.6 per cent. of all physicians were named on the official lists of staff (Table 3) members that were submitted by the hospitals.

TABLE 4.—*The Present Tendency Indicated by General Hospitals Established During the Last Five Years*

State	1920		1921		1922		1923		1924		Total 1920-1924		
	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Open	Closed	Total
Alabama	4	1	9	..	5	1	7	1	2	1	27	4	31
Arizona	1	..	..	..	2	1	..	..	..	..	3	1	4
Arkansas	4	1	..	..	2	1	..	..	..	..	6	2	8
California	11	3	6	3	9	3	9	4	4	1	39	14	53
Colorado	2	..	2	..	..	..	1	1	..	..	5	1	6
Connecticut	1	..	..	..	1	..	..	..	..	..	1	1	2
Delaware	..	..	1	..	1	..	..	..	..	..	2	..	2
District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..
Florida	..	..	..	..	2	..	1	..	1	..	5	..	5
Georgia	4	1	4	2	2	..	..	..	2	..	12	3	15
Idaho	..	..	1	..	..	..	1	1	..	..	2	1	3
Illinois	4	1	2	..	4	..	6	..	4	..	22	1	23
Indiana	4	..	3	..	4	..	2	..	4	..	16	..	16
Iowa	6	..	3	1	1	1	2	..	1	..	13	2	15
Kansas	3	1	4	..	2	1	3	2	4	1	16	5	21
Kentucky	3	2	3	..	2	..	..	..	..	..	8	2	10
Louisiana	3	..	2	..	..	2	1	..	2	..	8	2	10
Maine	..	1	2	..	1	..	..	..	..	..	3	..	3
Maryland	..	1	..	..	..	..	..	..	1	..	1	1	2
Massachusetts	..	..	1	..	2	1	2	..	1	..	6	1	7
Michigan	4	..	3	..	1	..	4	1	1	..	13	1	14
Minnesota	4	1	3	..	4	..	1	1	1	..	11	2	13
Mississippi	3	..	1	..	..	..	3	1	..	..	6	1	7
Missouri	1	..	1	..	..	1	3	..	2	..	7	1	8
Montana	..	..	..	..	..	..	..	..	..	..	..	..	..
Nebraska	9	..	2	..	1	..	1	..	..	..	9	..	9
Nevada	..	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	..	..	1	..	..	..	..	..	..	..	1	..	1
New Jersey	2	..	3	..	..	..	..	..	..	..	5	..	5
New Mexico	2	..	..	..	..	..	..	..	..	..	2	..	2
New York	3	1	..	..	1	2	1	1	..	..	9	3	12
North Carolina	4	1	2	2	1	2	1	1	1	..	9	5	14
North Dakota	1	..	..	..	..	..	..	..	..	..	1	..	1
Ohio	3	..	4	1	6	..	2	..	1	..	16	1	17
Oklahoma	5	..	3	..	5	..	4	..	1	..	18	..	18
Oregon	1	..	..	..	2	..	..	..	1	..	4	..	4
Pennsylvania	1	..	..	1	1	2	2	..	..	..	5	..	7
Rhode Island	..	..	..	..	..	..	2	..	..	..	2	..	2
South Carolina	2	..	2	1	1	..	..	..	1	..	6	1	7
South Dakota	2	..	2	..	..	..	1	..	..	..	5	..	5
Tennessee	..	1	1	..	..	..	1	..	1	..	3	1	4
Texas	5	1	6	1	6	2	5	2	1	1	24	7	31
Utah	..	..	..	..	3	..	..	..	1	..	4	..	4
Vermont	..	..	..	..	..	..	..	..	1	..	1	1	1
Virginia	2	1	2	..	1	..	..	..	..	..	6	2	8
Washington	3	..	2	..	1	..	..	..	..	..	6	..	6
West Virginia	..	..	2	..	1	1	1	..	1	..	5	1	6
Wisconsin	3	..	3	..	1	..	1	..	2	..	8	..	8
Wyoming	..	..	1	..	..	..	1	2	..	..	4	1	5
Totals	109	16	84	14	74	19	72	21	48	7	379	77	455
Percentages	86	14	86	14	80	20	77	23	87	13	83.1	16.9	

Obviously, there are many physicians accommodated by open hospitals whose names are not on these staff lists. A canvass of all the physicians in Chicago probably would show a proportion having hospital affiliation equal to that of New York City.

Twenty-nine per cent. of all physicians listed in the American Medical Directory for the state of New Jersey are named on the staffs of the hospitals that reported from that state. In Wyoming, 17 per cent. are on the staffs. In these percentages, allowance

1. Lewinski-Corwin, E. H.: The Hospital Situation in Greater New York, 1924, p. 45.

should be made for physicians who are listed in the Directory, but who are not in active practice, or for various reasons not in position to profit by hospital affiliation.

Figures on the inconvenience to physicians and their patients occasioned by the restricted policy of hospitals are not available. However, there is a little sidelight on the sentiment of physicians in the state of Nebraska in the answers to certain questions [2] recently submitted to the 1,200 physicians of that rural state, as follows:

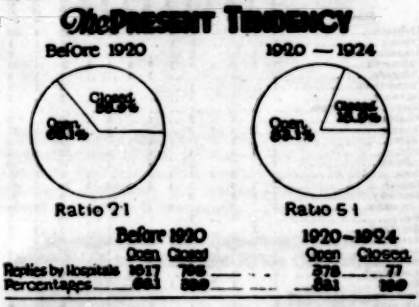
REPLIES OF PHYSICIANS IN NEBRASKA

Do you favor the open hospital with equal privileges to all? Yes, 148; no, 38.

Should ward beds be reserved for members of the staff? Yes, 60; no, 129.

Why have a medical staff in a private hospital? No reason why, 89; necessary to efficiency, 90; no opinion, 69.

Are hospitals in rural districts proving a success? Yes, 212; no, 54.



Obviously, one of the greatest possibilities for extending hospital connection to additional practitioners is in the new hospitals being established, and the building of new hospitals looms large when we know that there has been a net gain of more than 500 general hospitals in the last five years.

To put it differently, in 1920 there were 1,695 counties, or 56 per cent. of all the counties without hospitals, as compared with 1,367, or 44.6 per cent. of

TABLE 5.—*Comparative Summary*

	Before 1920		1920-1924		Total	
	Open	Closed	Open	Closed	Open	Closed
Replies by hospitals	1,017	705	278	77	1,295	972
Percentages	59.1	33.9	83.1	16.9	69.6	30.4
Ratio open to closed	2 to 1		5 to 1		2¼ to 1	

all the counties at present without hospitals (Table 6), a gain of 328 counties in five years. These 1,367 counties that have no hospitals within their borders have a total of 17,381 physicians, and a population of 17,677,254. There are 42,196 physicians in counties where all the hospitals are owned by individuals or partnerships.

THE PRESENT TENDENCY AS INDICATED BY THE POLICY OF RECENTLY ESTABLISHED HOSPITALS

To sound out the present trend of sentiment, a separate tabulation was made of the general hospitals that have been established during the last five years. The results are summarized in Table 4.

Of the 455 hospitals that were established in this five year period, 378 maintain the open policy and only seventy-seven, closed—a ratio of 5 to 1 as compared with a ratio of 2 to 1 for the period before 1920, as shown in Table 5.

In fact, the 100 general hospitals that were opened in 1924 show seven open to one closed. The tendency, therefore, is rapidly toward the establishing of more hospitals with open staffs.

2. Nebraska State M. J., December, 1924, pp. 486-488.

SMALL HOSPITALS *

EDWARD F. STEVENS, F.A.I.A., ARCHITECT
BOSTON

The highest medical and surgical efficiency may be attained only in hospitals of sufficient size to afford complete diagnostic, therapeutic and operating facilities; nevertheless there are and always will be smaller units for the care of the sick in localities where larger ones cannot be maintained. To meet this demand for the small surgical and medical units, this article is written.

I have often met conditions such as the following: A wealthy person, feeling his obligation to a community and believing that a hospital would be the kindest expression of gratitude, leaves in his will his beautiful estate to a board of trustees, directing them to develop and maintain the estate as a public hospital. The board, anxious to carry out the wishes of their late friend and neighbor, choose an architect (let it be hoped), and he is given the problem of making this beautiful home into a well functioning hospital. Can it be done? Sometimes, yes, with very good results; oftener, no, for the house designed for the pleasure of the owner and his family of three or four persons, with special reception rooms, dining room and parlors, narrow stairs, narrow doors and elaborate woodwork, does not always yield to an economical adaptation for use as a hospital. It is much simpler and often cheaper to start with a site without buildings than to start with an old house. It may be found, however, that the dwelling may function for a nurses' home.

FIRST CONSIDERATION: THE PATIENT

Whether our hospital is to be fifty beds (for we are not considering large hospitals in this paper) or five beds, the same principles of good planning are involved; viz., the housing of the patient, the medical and surgical care of the patient, and the feeding of the patient. In other words, we should build our hospital around our patient.

Since we are building our hospital around or for the patient, let us consider our patient first. If we were selecting a home site for ourselves or our family, we would select a site with pleasant surroundings and an outlook that would be at once inspiring and restful—where the morning sun would flood our breakfast room and the refreshing breezes would give comfort for the afternoon. Just so should we provide for our *patient* guest.

In selecting a site, drainage is important, as well as shelter from the cold winds of winter and the hot summer sun—a site easily approached by the old mother or the crippled brother, a sightly site but one accessible to all.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations. The complete article appears in the reprints.

Again considering the patient, his room, his bed and his environment should be right. The room or space in a ward should be so arranged as to give air without draft, light without glare or eyestrain, warmth without suffocation. In wards, I believe that a separation between beds, making the ward into alcoves with separate window and heat for each patient, must be placed where the approach to it can be shielded from the patient's view as much as possible. In the small hospital, the placing of this department as well as the medical treatment and laboratories on the first floor tends to simplify the problem, making all the working parts of the hospital below the patient's rooms.

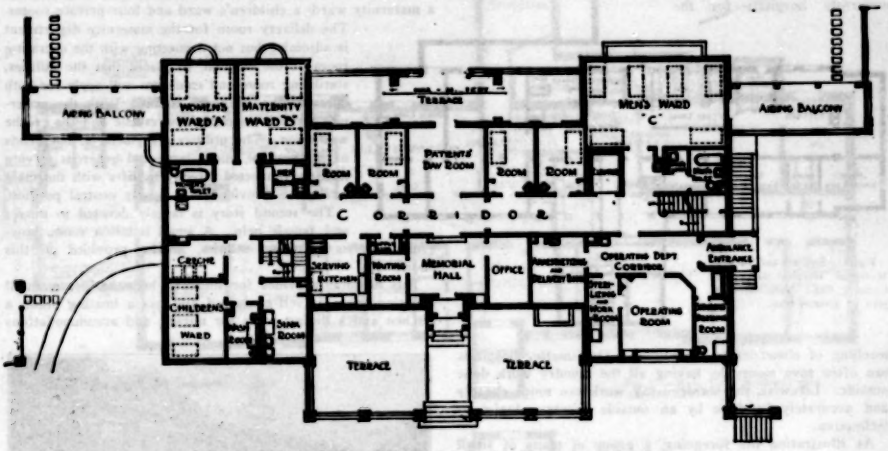


Fig. 2.—Benjamin Stickney Cable Hospital, Ipswich, Mass.: plan of first floor.

while not greatly increasing the labor of nursing, gives the patient that sense of privacy which is experienced in a private room. Then with these subdivided alcove rooms connecting directly with some form of subsink room, having a toilet and hopper, the nurse's work is minimized to a large degree (Fig. 14).

PREPARATION AND TRANSPORTATION OF FOOD

Whether the patients' trays should be laid in the kitchen and sent by lift or otherwise to the patient, or the food in bulk sent to the floor serving rooms and there served, or the hot food taken to the ward in one of the numerous "fireless cooker" forms of conveyors or portable "steam tables" now

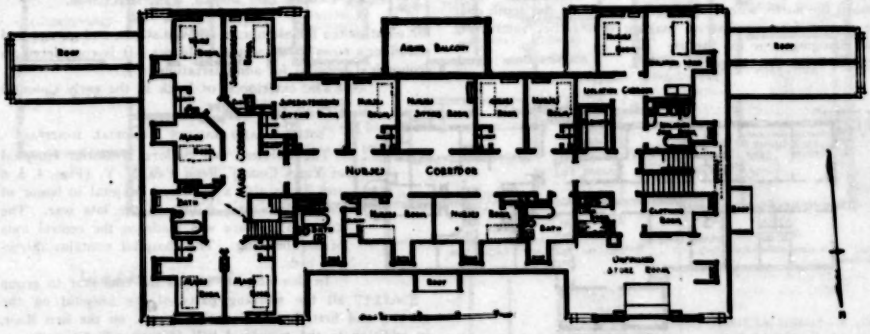


Fig. 3.—Benjamin Stickney Cable Hospital: plan of second floor.

The placing of public utilities in relation to the patient's room requires greater care than almost any other part of the planning; for if a serving kitchen is placed across the corridor from a private room or ward, the stairs or elevator not enclosed, or the utility room located nearby, the effect from noise is quite likely to react unpleasantly on the convalescence of the patient. So with the operating department: That most dreaded section of the hospital for the new patient on the market, the patient should receive hot, palatable food properly and delicately served.

FACILITIES REQUIRED

The small hospital, if it is to maintain the standard now expected of it, must have its roentgen-ray department and a well equipped laboratory and proper facilities for the keeping of records. It may have its own heating plant and its

own laundry within its walls, as well as its kitchen, store rooms, and necropsy room.

It is nearly always possible to affiliate with other and larger hospitals for special work. Nearly every town has its board of health laboratory, and arrangements can generally be made with the larger maternity hospitals for the teaching of obstetrics to the nurses. The smaller hospitals can often save money by having all the laundry work done outside. Likewise, the roentgen-ray work can more cheaply and accurately be done by an outside roentgenologist or technician.

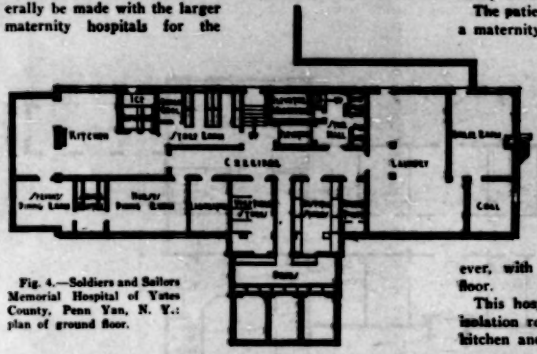


Fig. 4.—Soldiers and Sailors Memorial Hospital of Yates County, Penn Yan, N. Y.: plan of ground floor.

As illustrating the foregoing, a group of plans of small hospitals that I have designed are presented and short descriptions given.

BENJAMIN STICKNEY CABLE HOSPITAL

In the Benjamin Stickney Cable Hospital, Ipswich, Mass. (Figs. 1, 2 and 3), the memorial feature was made prominent, the memorial entrance being placed on the main axis and dividing the different services of the building. The site selected was an open lot of about 10 acres gently sloping toward the north, with a splendid view toward the south over the nearby farming district, making it a rather interesting and changing view for the patients. With the exception of the children's ward, all patients' rooms and wards look out on this southern view or on the patients' court or terrace; and as practically all the patients are on the first floor (Fig. 2), this open terrace is made available for convalescent or ambulant patients. The court is about 200 feet square, surrounded by a low brick wall with small summer houses at the exterior angles. With the patients placed largely on the south side of the building, the north is devoted to the memorial hall and the offices, the utilities and the operating suite. The operating suite is placed on the first floor so that it will be in close proximity to the ambulance court and also easily accessible to all departments.

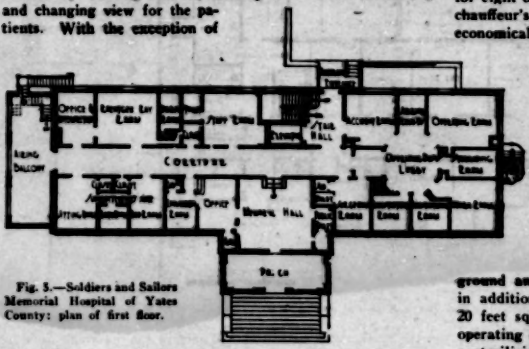


Fig. 5.—Soldiers and Sailors Memorial Hospital of Yates County: plan of first floor.

The patients' portion is divided into male and female wards, a maternity ward, a children's ward and four private rooms. The delivery room for the maternity department is adjoining but not connecting with the operating room of the hospital, so placed that the utilities, sterilizing room and scrub-ups will apply for both operating and delivery rooms. With the maternity ward is connected the crèche and the crèche washroom. The utilities are placed at both ends of the hospital, and a large and generous serving kitchen, connected directly by lifts with the main kitchen, is provided in a nearly central position.

The second story is largely devoted to nurses and female help. A small isolation room, however, with its adjoining utilities, is also provided on this floor.

This hospital provides for nineteen beds besides a small isolation room, is self-contained and has a heating plant, a kitchen and a dining room for nurses, and accommodations for eight or ten female nurses and assistants, and garage and chauffeur's room in connected buildings. It is considered an economical hospital for administration.

Fig. 8.—Mary Lane Hospital, Ware, Mass.: front.

The exterior is of brick in the early Colonial type of architecture.

SOLDIERS AND SAILORS MEMORIAL HOSPITAL

The Soldiers and Sailors Memorial Hospital of Yates County, Penn Yan, N. Y. (Figs. 4, 5, 6 and 7), is also a memorial hospital in honor of the soldiers and sailors of the late war. The memorial feature was made on the central axis of the building. This hospital contains thirty-one beds.

In this hospital it was the endeavor to group all the working parts of the hospital on the ground and first floors. In other words, on the first floor, in addition to the memorial hall feature, which is a room 20 feet square surrounded with bronze tablets, there is the operating department, which consists of two operating rooms, a sterilizing room, work room and physicians' room; while on the reverse end of the hospital are placed the laboratory, the roentgen-ray department and a small suite for the superintendent, as well as consultation and staff rooms.

On the second floor there are three wards and ten private rooms, there being one suite with bath room connection. The serving kitchen and utility rooms are placed with entrances

off the corridor in such a way as to conserve the quietness of the hospital. On the third floor, at the extreme south corner, is the maternity section with delivery room and crèche, with crèche wash-room cut off from the main corridor.

This hospital, with its simple straightforward plan, has proved to be a very economical one to build.

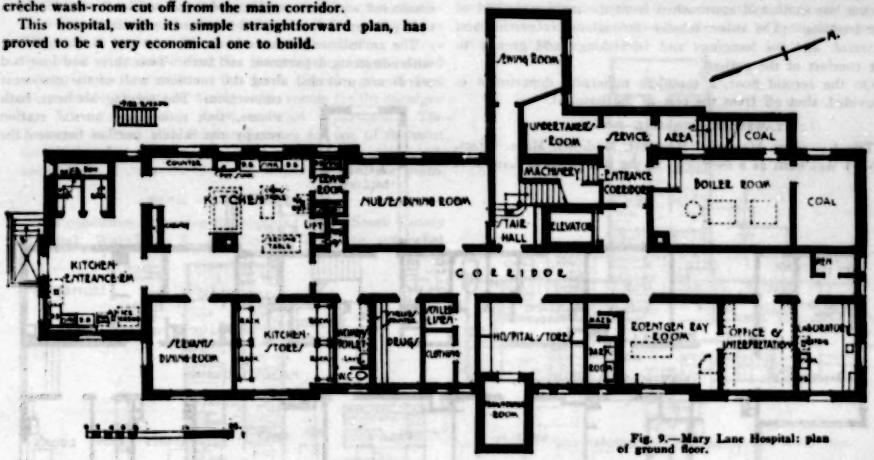


Fig. 9.—Mary Lane Hospital: plan of ground floor.

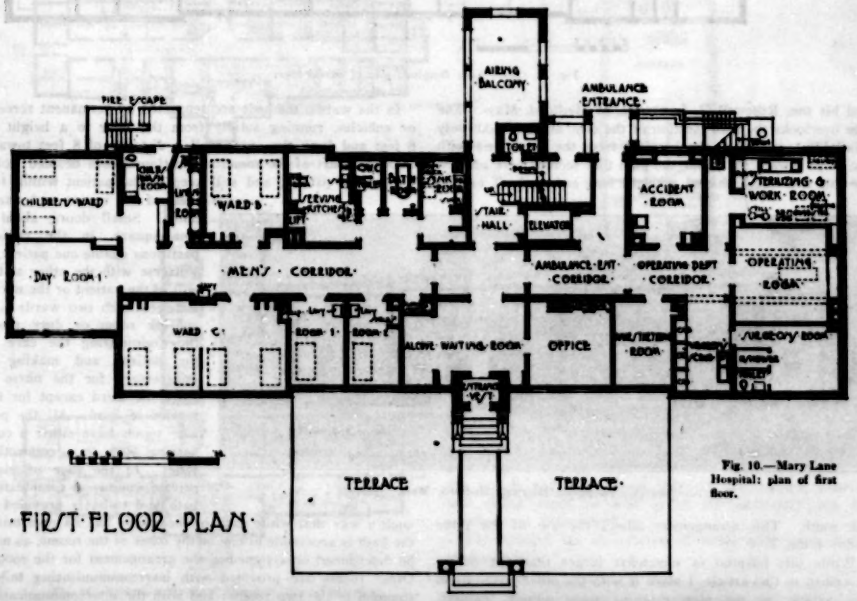


Fig. 10.—Mary Lane Hospital: plan of first floor.

MARY LANE HOSPITAL

The Mary Lane Hospital, Ware, Mass. (Figs. 8-11), serves the community of Ware and adjoining towns. It has complete hospital facilities, with thirty-one beds for all classes, male and female, children and maternity. The ground floor contains complete kitchen and dining facilities, storage, roentgen ray and laboratory, with a self-contained heating system. There being no high pressure steam, electricity is used for all sterilizers and for distilling the water used for surgical purposes. The operating department is on the first floor, connected directly with the ambulance entrance as well as with the central portion of the hospital and with the elevator. The operating section contains operating and accident rooms,

sterilizing and work rooms, surgeons' rooms and surgeons' scrub-up, and an anesthetizing room. The children's ward and day room are features of this floor, with airing balconies facing the south and approached from the main stair hall of the building. The color scheme throughout is restful and cheerful, and the hangings and furnishings add greatly to the comfort of the patient.

On the second floor, a complete maternity department is provided, shut off from the rest of the hospital.

LAWRENCE MEMORIAL HOSPITAL

The Lawrence Memorial Hospital, Medford, Mass. (Figs. 12-16) was built as a memorial to the late General Lawrence and his son, Rosewell B. Lawrence, of Medford, Mass. The site overlooks the main section of the city, and with the only available approach to the hospital from the north and with the slope toward the south, the plan that seemed best adapted for this site was T shaped, with the long end of the T toward the south. This arrangement allows the use of the three ends of the T.

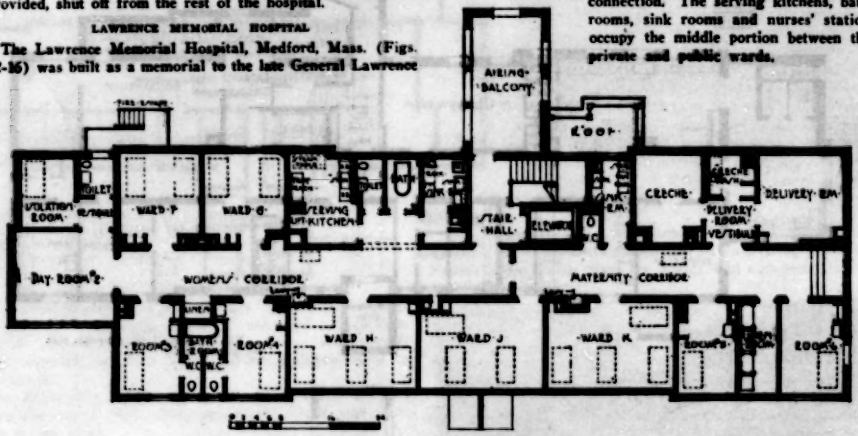


Fig. 11.—Mary Lane Hospital: plan of second floor.

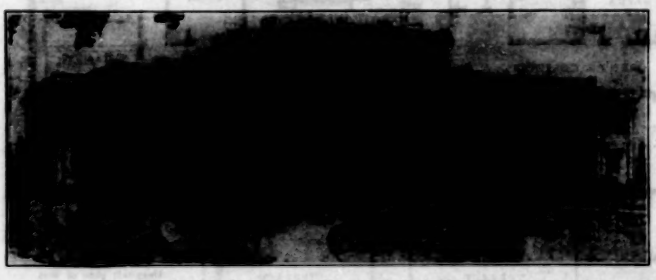


Fig. 12.—Lawrence Memorial Hospital, Medford, Mass.: front.

While this hospital is somewhat larger than the others described in this article, I place it with the other hospitals in this article, as the plan contains some unique features. Among them, and by no means the least important, is the utilizing of the cubicle system in the wards, and the individual toilets and baths for private rooms. The main entrance is to the north through a large memorial hall or waiting room, in which the over mantels of the two fireplaces contain bronze tablets in memory of the two Lawrences. From this hall one enters the offices, superintendent's room, social service room and board room, which are directly connected with one another and separated by a corridor from that portion of the hospital occupied by patients.

The ambulance entrance is on the west end of the building with admitting department and bath. Two, three and four bed wards are provided along the southern wall of the east-west connection. The serving kitchens, bath rooms, sink rooms and nurses' station occupy the middle portion between the private and public wards.

In the wards, the beds are separated by permanent screens or cubicles, running solidly from the floor to a height of 8 feet and from the outer wall a distance of 8 feet toward the inner part of the room, making possible a decided isolation of the patient, and still keeping the patient within full view of the nurses and attendants. Small doors, about 2 feet square, in the cubicle partitions enable one patient to converse with the other at the will of the patient or the nurse. Between each two wards is a subsink room or duty room, thus minimizing the care of the patient and making it unnecessary for the nurse to leave the ward except for the service of food. All the private rooms have either a connecting bath or a connecting toilet. In the case of eight private rooms, a combination bath and toilet is provided in such a way that while each of the rooms has its own toilet, the bath is accessible to one or the other of the rooms, as may be determined or assigned in the arrangement for the rooms. Other rooms are provided with intercommunicating toilets common to the two rooms; and with the intercommunicating toilets, special bed-pan washing devices are provided.

The delivery room and operating department are entirely shut off from the other portions of the hospital. The delivery room is on the second floor occupying a central portion over the main entrance, and consists of a labor room, delivery

room, crèche and physicians' waiting room, all north of the main corridor.

On the third story is the complete operating department, which consists of two operating rooms, scrub-ups, anesthetizing room, work room and surgeon's room. Connection from this story is made to the roof, which is finished as a large roof ward. Accommodations for the patients as to toilet and serving rooms are made on this level. On the ground floor are provided the kitchen, dining room, rooms for the roentgen ray, laboratory, and a small isolation department. The T shaped building here illustrated makes for one of the most flexible hospital plans of any shape that can be suggested, particularly if the point of the T projects toward the south.

SOUTH COUNTY HOSPITAL

The conditions governing the planning of the South County Hospital, Wakefield, R. I. (Figs. 17-21), are somewhat different from any of the foregoing, as the hospital physician and his wife both assist in the administration, so that rather more elaborate living quarters are provided than is customary in a small hospital of this type. By providing the ambulance entrance on the ground floor, the first floor is made available for patients as well as for office facilities. While this may not be the ideal plan, this small hospital is worked out in such a way that the incoming visitor or patient will not come in contact with the patient in the hospital, and ample provision is made on both stories for the care of patients as well as for nurses.

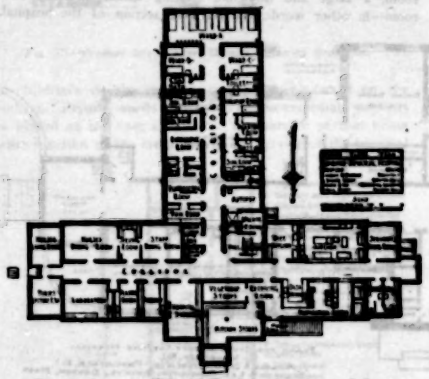


Fig. 13.—Lawrence Memorial Hospital: plan of ground floor.

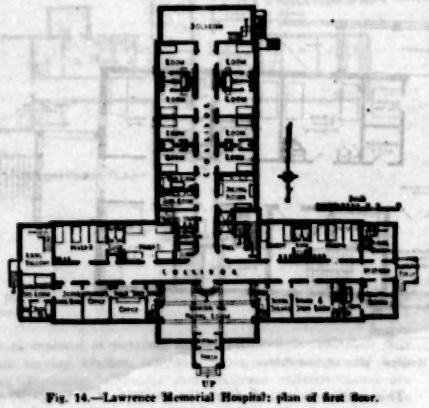


Fig. 14.—Lawrence Memorial Hospital: plan of first floor.

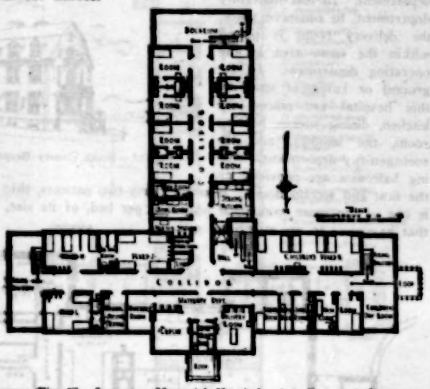


Fig. 15.—Lawrence Memorial Hospital: plan of second floor.

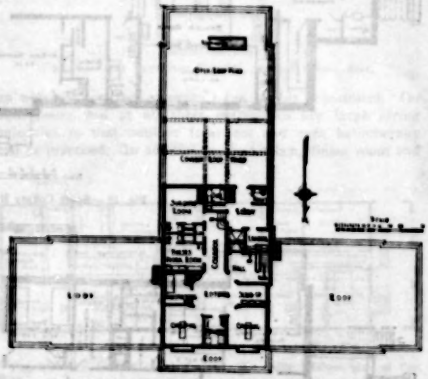


Fig. 16.—Lawrence Memorial Hospital: plan of third floor.

The operating department of this hospital is on the second floor, containing two operating rooms as well as utility rooms. A maternity department similar to those described before is also located on this floor. The third floor is occupied by the nurses and the ground floor by the kitchen, laundry and dining room, as well as by the laboratory and the roentgen-ray department.

The building has an exterior of brick, with inside frame construction.

PRESQUE ISLE GENERAL HOSPITAL

One of the simplest of the plans shown here is that of the little hospital built at Presque Isle, Maine (Figs. 22-25). Every inch of space is conserved, for as it is a straightaway rectangular building there is no waste space whatever. On the first floor, with the exception of the reception room, consultation room and office, all the space is devoted to the

patients, there being rooms for fourteen patients, with toilets, baths, serving kitchens and utility rooms.

The second floor is devoted entirely to private patients, with the proper utilities. On the third floor are the maternity section as well as the operating department. In this maternity department, to conserve space, the delivery room is placed within the same area as the operating department. In the ground or basement story of this hospital are placed the kitchen, dining rooms, heating room, the laundry, and the roentgen-ray department. Airing balconies are provided on the first and second floors. Housing thirty-two patients, this is one of the most economical hospitals, per bed, of its size, that has come to my attention.

Fig. 17.—South County Hospital, Wakefield, R. I.: exterior.

ing the portion north of the east-west corridor for offices, operating department, etc. This allows for the eastern, western and southern portions of the hospital to be brought very largely into the sunlight; and while this particular hospital was an addition to an existing building, it is a plan that will lend itself to an entirely new institution. Entrance for visitors is provided on the first floor, which is approached through steps at the north, this floor being made practically a story above the ground, which allows the entire use of the ground floor for service. In the first story, north section, are provided the general offices, the board room, a large and homelike waiting room, and the staff room—in other words, the business section of the hospital.

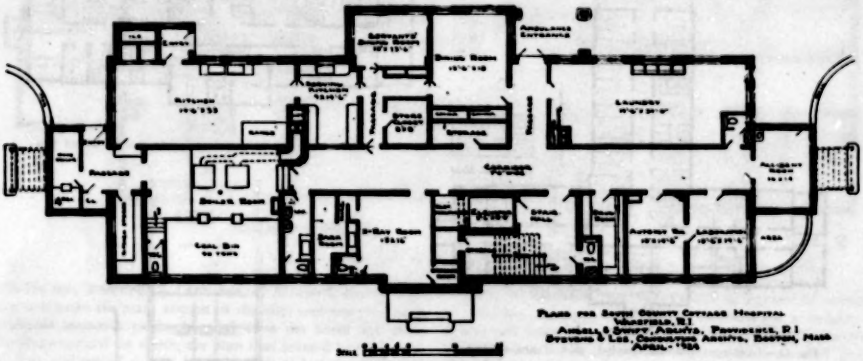


Fig. 18.—South County Hospital: plan of ground floor.

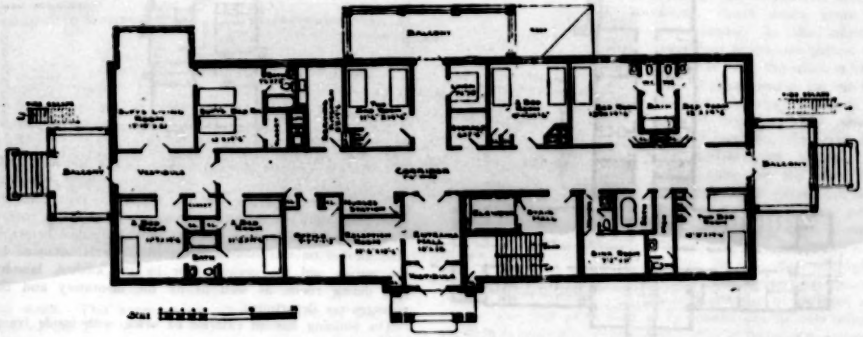


Fig. 19.—South County Hospital: plan of first floor.

GOOD SAMARITAN HOSPITAL

The plan adopted for the Good Samaritan Hospital, Sandusky, Ohio (Figs. 26-28), a fifty-bed hospital, is one that yields to more flexible treatment than almost any other, but cannot be used to advantage except when a northern entrance is made possible; that is, a cross shape plan, utilizing the portion north of the east-west corridor for offices, operating department, etc. This allows for the eastern, western and southern portions of the hospital to be brought very largely into the sunlight; and while this particular hospital was an addition to an existing building, it is a plan that will lend itself to an entirely new institution. Entrance for visitors is provided on the first floor, which is approached through steps at the north, this floor being made practically a story above the ground, which allows the entire use of the ground floor for service. In the first story, north section, are provided the general offices, the board room, a large and homelike waiting room, and the staff room—in other words, the business section of the hospital. This section is cut off from the patients' portion, giving no appearance of a hospital at the entrance until one enters the patients' portion of the hospital. By making the corridor of the east-west projection entirely on the north and the building consequently narrower, it gives all rooms occupied by patients on the south, east or west plenty of sunlight.

There is no room in the hospital that will not receive sunlight at some time of the day.

The subdivision of patients is made quite possible, the women's ward being on the western projection of the cross,

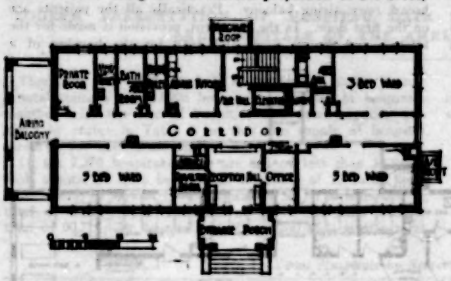


Fig. 23.—Presque Isle General Hospital: plan of first floor.

the children's on the eastern, and the men's ward on the southern. Private wards and wards for intermediate patients are placed on the east and west. The service portion being at the junction of the cross makes the service of the hospital

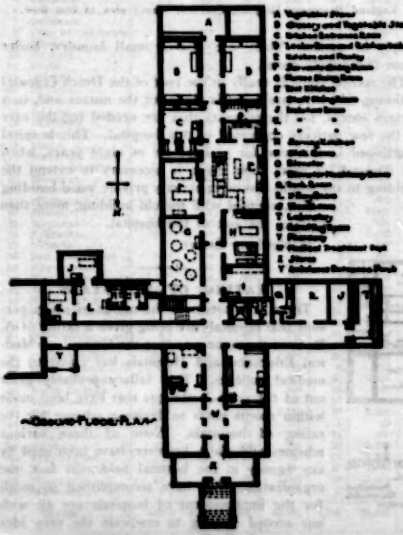


Fig. 26.—Good Samaritan Hospital, Sandusky, Ohio: plan of ground floor.

as economical as possible, and in this case on each floor only one serving kitchen, one sink-room, and one general bath are necessary. Elevator and staircase communication are so cut off from the patients' vision that no disturbance to the patient is caused by the activities of these busy sections of the floors. On the second floor of this building the patients' portion is largely devoted to private rooms. On this floor, however, is the maternity department, consisting of delivery room, crèche and maternity ward.

The operating suite surrounding the rotunda works out in a most satisfactory way, providing two operating rooms and the various utilities. The scrub-up in the center of the rotunda provides ample facilities for washing and scrubbing

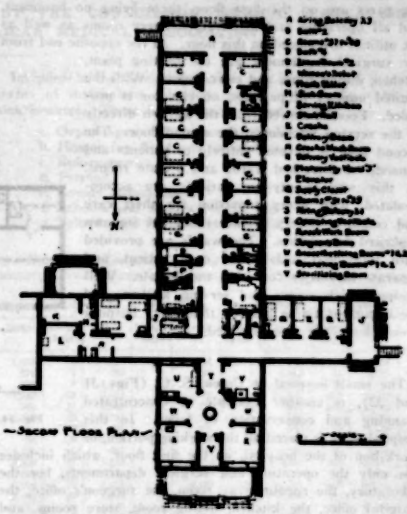


Fig. 28.—Good Samaritan Hospital: plan of second floor.

up within a few feet of every room in this department. On both floors and at all three extremities are large airing balconies so that outdoor treatment and even heliotherapy can be practiced. In addition to the kitchen, dining room and

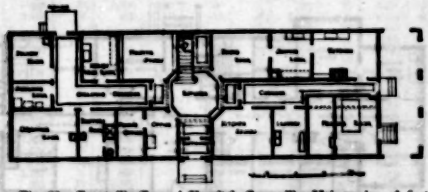


Fig. 29.—Greenville General Hospital, Greenville, Maine: plan of first floor.

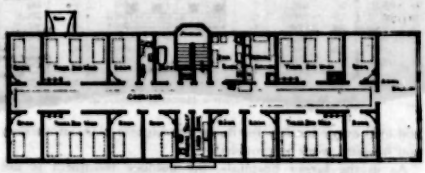


Fig. 30.—Greenville General Hospital: plan of second floor.

store rooms on the ground floor, there is a small isolation department, a roentgen-ray department and laboratories.

GREENVILLE HOSPITAL

The Greenville Hospital, Greenville, Maine (Figs. 29 and 30), occupies a peculiar position in the heart of the Maine

forests and, since its erection, has been doing splendid work in caring for the district in which it is located. It is built of wood, is only two stories high, and is so planned as to minimize the cost of caring for the patients. All the working parts are on the first floor, there being no basement, and all operating and maternity delivery rooms as well as the utilities are placed on this floor. At the opposite end from the surgical department are the heating plant, kitchen, dining room and store rooms. With the limited number of patients, no elevator is provided. Food is served from the kitchen directly to the serving kitchen on the second floor. The second floor is devoted entirely to patients and consists of three-bed wards and private rooms. In this way twenty-one patients are accommodated, with every provision for their care and comfort. Every private room has its own cupboard for clothes. The wards are provided with individual lockers for each patient, and separate lavatories for male and female. Well equipped sink rooms and serving kitchen, and the important airing balcony that every hospital should have, are also provided.

WALLACE THOMSON HOSPITAL

The small hospital at Union, S. C. (Figs. 31 and 32), is another example of concentrated planning and conservation of labor. In this hospital there is placed all the working portion, or workshop of the hospital, on the first floor, which includes not only the operating and surgical departments, but the laboratory, the roentgen-ray room, the surgeon's office, the hospital office, the kitchen, dining room, store rooms, and heating plant.

With all the mechanical essentials taken care of on the first floor, the second floor is devoted entirely to patients, with four small wards and a number of private rooms. In all, only thirteen patients are taken care of in this hospital,

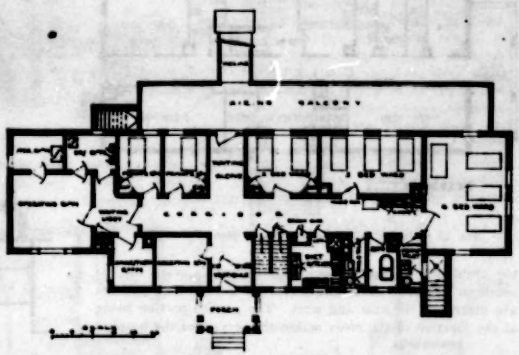


Fig. 34.—New England Deaconess Hospital, Concord, Mass.: plan of first floor.

hospital. It shows the possibilities of providing for a dozen patients in the most economical way, with practically every facility for doing the necessary work. Facing as it does to the north, the entire south side is left for patients, with a broad, open airing balcony. Practically all the patients are on the first floor. In the basement, provision is made for the kitchen and dining room and even for the housing of a couple of maids. There are also a small laundry, boiler room and supply room.

The second story is really in the roof of the Dutch Colonial building, and here provision is made for the nurses and, to a certain extent, for the servants that are needed for the care of the few patients contained in this hospital. This hospital functioned in this size for perhaps six or eight years, when the demand for more room made it necessary to extend the building to the south, making a strictly private ward building which, coupled with the old building, more than doubles the size of the hospital.

45 Newbury Street.

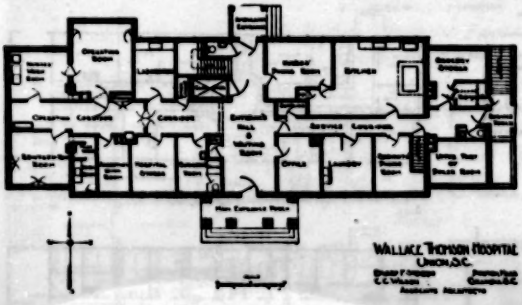


Fig. 31.—Wallace Thomson Hospital, Union, S. C.: plan of first floor.

and still every facility for doing the highest class of surgery and hospital work is provided.

As in the larger hospitals, the outdoor treatment is not forgotten, and the large airing balconies, both at the east and at the west end of the building, furnish ample space for outdoor treatment.

NEW ENGLAND DECONESS HOSPITAL

With slight modifications, the plan of the New England Deaconess Hospital, Concord, Mass. (Figs. 33-35), would make an excellent arrangement for a physician's own private

RATING OF HOSPITALS

There is a notion in the minds of many persons that hospitals are being given a rating of A, B, C, in the same way that the Council on Medical Education and Hospitals has classified the medical colleges. This fallacy probably grew out of the several attempts that have been made within recent years to devise a scheme for the rating of hospitals. None of these various schemes and plans, however, have been used by any agency in the hospital field. In fact, the organizations that have accomplished so much for the improvement of hospitals are all with one accord striving to eradicate the very idea that any A, B, C rating is being made.

The principal agencies for hospital betterment designate which hospitals are approved as meeting certain minimum requirements. For example, the American Hospital Association admits hospitals to institutional membership. The American College of Surgeons publishes a list of the hospitals that meet its minimum requirements regarding laboratory, records, staff organization and fee splitting. The American Medical Association, through the Council on Medical Education and Hospitals, maintains a list of hospitals that provide acceptable internships. But none of these has assumed the responsibility of rating hospitals in ranks such as A, B, C or 1, 2, 3.

HOSPITAL SERVICE IN THE UNITED STATES

FOURTH PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

There are now 7,370 hospitals in the United States having a total capacity of 813,926 beds. The number of hospitals together with the size of hospitals and total capacity are given by states in Table 1, so that the supply of hospital facilities for each state may be noted.

Of the 7,370 hospitals there are 665 of less than 10 beds with a total of 3,850 beds; 2,301 hospitals of 10 to 25 beds with a total of 39,461; 1,744 hospitals of 26 to 50 beds with a total of 68,235; 1,207 hospitals of 51 to 100 beds with a total of 90,715; 746 hospitals of 101 to 200 beds with a total of 108,818; 256 hospitals of 201 to 300 beds with a total of 69,992, and 451 of over 300 beds with a total capacity of 432,855.

New York easily leads in its aggregate of hospital facilities, having 688 hospitals with a total of 120,739 beds or 14.8 per cent. of the bed capacity of all hospitals in the United States. Next in number of hospitals, but not in number of beds, is California with 485 hospitals and 46,748 beds. Next to New York in bed capacity, however, is Pennsylvania, with 462 hospitals and 63,548 beds. Next to Pennsylvania in both number and capacity is Illinois with 415 hospitals and 56,535 beds.

Included in the foregoing figures are 894 hospital departments of institutions intended exclusively for the care of sick inmates. These institutions referred to are:

a. Orphanages and Homes for Children.
b. Homes for Aged and Incurables.
c. Reformatories.
d. Prisons.
e. County Almshouses.
f. Schools and Homes for the Deaf.
g. Schools and Homes for the Blind.

Mention of such institutions throughout this article has reference only to their hospitals, sick rooms, or hospital departments.

Taking away these 894 institutional hospitals from the total of 7,370 leaves 6,476 hospitals properly so called.

No census of the total number of patients in hospitals or the total number of beds occupied has been made within recent months. In 1920, 67 per cent. of all the beds then existing were occupied. In 1923, 64.1 per cent. were occupied, and wherever a census has been made within the last few months it seems that on the average there is a still further slight decrease in the percentage of beds occupied.

TABLE 1.—*Total Hospitals by States—Giving Number and Capacity*

	State	Less Than 10 Beds		10-25 Beds		26-50 Beds		51-100 Beds		101-200 Beds		201-300 Beds		Over 300 Beds		Totals		
		Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	
1	Alabama	3	20	38	640	32	1,220	14	1,088	8	1,155			4	3,040	97	6,880	1
2	Arizona	6	44	25	324	20	978	9	675	2	240	1	250	2	1,220	74	3,881	2
3	Arkansas	7	43	36	414	17	644	10	688	3	1,129	3	850	2	2,826	73	6,590	3
4	California	39	242	192	3,360	99	3,695	69	4,567	23	6,424	12	3,591	31	25,081	485	46,748	4
5	Colorado	7	49	39	624	24	1,231	13	1,000	11	1,542	2	580	11	6,482	116	11,509	5
6	Connecticut	1	10	27	516	13	1,000	10	1,405	16	2,380	7	1,741	6	6,706	84	13,252	6
7	Delaware	1	5	3	49	7	274	4	341	2	286	1	250	1	550	19	1,704	7
8	Dist. of Columbia	0	39	7	123	0	239	1	69	9	1,272	4	1,007	7	7,560	42	10,281	8
9	Florida	4	31	32	469	15	821	9	734	3	697	0	849	1	2,250	69	5,402	9
10	Georgia	14	73	53	892	30	1,742	19	1,466	11	1,613	4	1,268	3	5,320	133	10,971	10
11	Idaho	3	20	24	276	11	474	9	1,240	2	225	0	624	1	417	52	3,284	11
12	Illinois	20	186	107	1,589	85	3,389	39	6,778	39	7,972	16	4,105	23	32,511	415	56,535	12
13	Indiana	21	177	55	917	47	1,800	23	1,705	25	2,695	5	1,122	6	6,003	184	17,414	13
14	Iowa	21	127	79	1,259	50	2,548	39	2,111	14	2,115	2	580	9	6,741	212	17,283	14
15	Kansas	10	64	73	1,235	39	1,974	18	1,795	7	968	1	250	7	5,988	162	11,980	15
16	Kentucky	13	79	49	805	26	1,336	17	1,595	8	1,089	3	810	7	6,719	131	11,899	16
17	Louisiana	4	15	35	488	16	820	16	1,324	6	944	4	931	7	6,118	79	10,225	17
18	Maine	17	95	39	531	20	813	9	691	7	976			3	2,216	76	5,324	18
19	Maryland	14	69	19	267	29	1,151	22	1,857	14	1,932	16	3,556			114	14,697	19
20	Massachusetts	26	145	68	1,022	70	3,252	61	4,999	42	6,187	9	2,130	27	29,101	328	45,949	20
21	Michigan	22	139	99	1,526	66	2,597	31	2,447	23	3,281	2	480	20	16,584	262	28,779	21
22	Minnesota	18	122	68	1,081	46	2,052	25	1,972	17	2,369	11	2,543	14	11,288	244	22,617	22
23	Mississippi	2	8	21	272	23	892	11	880	4	575	1	255	5	4,107	67	7,889	23
24	Missouri	12	61	69	975	49	1,897	35	2,702	20	2,709	10	2,504	13	11,800	208	32,658	24
25	Montana	9	32	25	407	21	1,042	9	722	10	1,502	1	250	1	250	75	6,205	25
26	Nebraska	20	168	54	778	27	1,022	15	1,197	6	679	2	417	6	4,586	124	9,362	26
27	Nevada	3	22	14	272	7	330							1	380	25	994	27
28	New Hampshire	13	69	18	329	8	330	16	1,122	3	325			8	2,880	61	4,994	28
29	New Jersey	17	98	37	675	46	1,847	39	2,930	22	4,884	10	2,843	16	13,694	199	29,097	29
30	New Mexico	7	43	12	180	12	650	12	1,000	3	451	2	1,250	2	1,250	57	5,324	30
31	New York	46	274	135	2,489	148	6,602	115	10,281	92	13,407	42	11,183	70	77,191	688	120,739	31
32	North Carolina	5	23	49	935	30	2,540	27	3,685	7	961	2	525	4	5,850	125	12,227	32
33	North Dakota	4	20	20	295	15	527	8	849	7	988			2	1,806	56	4,354	33
34	Ohio	26	199	108	1,794	64	2,603	37	4,267	25	3,549	11	5,220	19	28,229	295	47,059	34
35	Oklahoma	9	57	49	781	25	1,314	21	1,957	3	495	1	250	5	3,900	113	8,755	35
36	Oregon	6	40	30	509	28	944	18	1,184	4	581	1	300	5	4,219	91	7,811	36
37	Pennsylvania	30	224	91	1,622	89	3,597	69	7,383	45	9,468	19	4,503	49	36,516	462	63,549	37
38	Rhode Island	4	25	10	178	9	324	7	674	5	893	1	250	6	5,297	42	8,651	38
39	South Carolina	1	2	23	407	27	1,016	8	827	5	649	2	519	1	2,250	64	6,577	39
40	South Dakota	6	44	16	233	13	1,000	15	1,127	3	369	2	512	3	2,257	59	6,122	40
41	Tennessee	9	44	36	591	32	1,257	13	921	12	1,885	3	825	6	4,977	110	10,570	41
42	Texas	15	120	97	1,719	67	2,558	36	2,989	17	2,545	6	1,679	12	10,488	253	21,501	42
43	Utah	12	84	10	270	1	48	1	69	3	469	2	470	1	700	40	2,120	43
44	Vermont	6	27	12	200	14	580	8	625	1	125	1	280	2	1,275	62	2,957	44
45	Virginia	12	45	39	516	30	1,220	22	2,233	11	1,547	3	727	9	6,088	125	14,239	45
46	Washington	17	108	56	969	31	1,350	19	1,324	15	2,269	5	1,228	8	5,823	151	12,771	46
47	West Virginia	3	16	15	224	27	1,052	19	1,578	6	775	1	225	5	4,228	76	7,954	47
48	Wisconsin	18	94	65	1,073	46	1,874	43	3,188	44	6,970	11	2,766	11	7,079	238	22,941	48
49	Wyoming	4	24	15	228	7	273	5	349	3	504			2	665	36	2,004	49
	Totals	665	3,850	2,301	39,461	1,744	68,235	1,207	90,715	746	108,818	256	69,992	451	432,855	7,370	813,926	

Increase in Hospital Facilities

The net increase in hospitals during the two years from 1923 to 1925 amounts to 540 hospitals with 58,204 beds. This looks at first as if the hospitals that have been built during the past two years had an average capacity of a little more than 100 beds. This, however, is not necessarily true since the 58,204 increase naturally includes the additions to a great many hospitals that were in existence in 1923.

The increase in the number and capacity of hospitals is summarized as follows:

Size	Number of Hospitals		Number of Beds		Increase	
	1923	1925	1923	1925	Hospitals	Beds
Less than 10 beds	619	625	3,479	3,850	46	371
10 to 25 beds	2,113	2,291	39,514	39,461	189	2,947
26 to 50 beds	1,422	1,744	48,459	68,295	112	4,836
51 to 100 beds	1,072	1,207	83,623	99,715	135	16,092
Over 100 beds	1,224	1,453	571,497	611,685	129	40,188
Capacity unknown (1923)	71	.....	.....	.....	—71	.....
Totals	6,520	7,370	755,722	813,926	540	58,204

Note: There were 71 hospitals that did not report their capacity in 1923. During the present (1925) census, the capacity of all hospitals was ascertained; hence the 71 are distributed among the number of hospitals in the column giving the increase. It is thought that the larger proportion of these 71 hospitals was of the smaller sizes, say less than 10 beds or 10 to 25 beds.

rapid growth shows a net gain of 540 hospitals in the past two years, it looks as if the present decade, 1921 to 1930, will set a new record. The direction of the present expansion of hospital facilities, it is gratifying to note, is toward supplying hospital facilities where they have not heretofore existed. This will be noticed in the account of supply of hospital facilities by counties. Hospitals have been built during the past two years in 178 counties that formerly were entirely lacking in hospital service, not to mention the hospital facilities that have been added elsewhere. (See Table 5.) From 1920 to 1925, hospitals were located in 328 counties that formerly were without hospitals.

Comparison of the hospital capacity of states in 1925 with that of 1923 shows a slight decrease in the numbers of hospitals in Idaho, Louisiana, Maine, Nebraska and Nevada, but all of these states show an increase in the total capacity of their hospitals with the exception of Maine. A slight decrease in number of beds is noted in Indiana, Kentucky, Maryland, Montana, New Hampshire, New Mexico and South Carolina. Fluctuations in the hospital facilities over a short period of time can be accounted for in some states through the rise and fall of certain industries, particularly mining and lumbering, but an explanation of all these decreases is not ventured nor is it deemed necessary. In all of these states where either a decrease in number or in bed capacity has been noted, hospital building projects are under way with the possible exception of Nevada and New Hampshire.

Table 2.—*Hospitals Maintained by Government Agencies*

	State	Federal		State		County		City		City and County		Total Government		
		Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	
1	Alabama	4	893	9	3,204	7	295	5	310	1	60	26	4,862	1
2	Arizona	22	1,650	7	650	9	257	.....	.....	.....	.....	38	2,557	2
3	Arkansas	3	805	7	2,769	3	225	3	172	2	85	17	4,179	3
4	California	23	6,045	19	14,882	69	7,650	9	592	6	1,591	115	30,710	4
5	Colorado	4	2,412	10	2,712	6	268	3	32	4	610	29	5,980	5
6	Connecticut	1	800	14	5,917	2	125	9	827	.....	.....	26	7,661	6
7	Delaware	1	70	2	600	2	150	.....	.....	.....	.....	6	820	7
8	District of Columbia	8	7,619	.....	.....	.....	.....	2	295	.....	.....	10	7,914	8
9	Florida	6	813	4	2,249	4	189	3	613	.....	.....	22	3,769	9
10	Georgia	8	1,288	8	1,650	.....	.....	10	899	3	510	29	4,347	10
11	Idaho	4	304	.....	.....	1	60	1	80	1	82	7	526	11
12	Illinois	8	2,760	21	23,891	28	4,893	26	2,188	3	99	87	33,771	12
13	Indiana	3	1,222	21	7,573	26	1,584	12	665	1	11	76	11,509	13
14	Iowa	3	572	19	6,855	19	921	15	455	2	30	58	10,832	14
15	Kansas	6	820	19	5,779	6	242	8	187	.....	.....	41	7,178	15
16	Kentucky	6	935	13	5,859	7	261	6	704	2	210	34	8,165	16
17	Louisiana	4	1,230	9	5,719	.....	.....	3	340	1	16	17	8,005	17
18	Maine	3	650	10	2,340	2	76	5	227	.....	.....	21	3,293	18
19	Maryland	11	2,295	19	6,460	9	775	5	387	.....	.....	39	9,891	19
20	Massachusetts	10	2,576	39	23,794	7	698	43	5,225	.....	.....	99	31,991	20
21	Michigan	6	882	19	11,950	26	2,602	20	2,899	1	39	82	17,882	21
22	Minnesota	10	1,550	17	8,146	15	1,494	17	1,868	9	1,502	68	14,560	22
23	Mississippi	3	705	11	1,459	1	50	.....	.....	3	165	19	2,179	23
24	Missouri	5	697	15	6,859	1	617	12	5,051	2	327	41	13,551	24
25	Montana	6	628	7	611	5	291	.....	.....	2	37	20	1,576	25
26	Nebraska	3	150	10	4,450	3	455	6	880	.....	.....	22	5,777	26
27	Nevada	1	60	2	280	10	228	.....	.....	.....	.....	13	571	27
28	New Hampshire	3	412	6	2,052	3	149	6	288	.....	.....	18	2,897	28
29	New Jersey	5	122	15	6,527	22	5,202	12	2,286	.....	.....	57	14,184	29
30	New Mexico	12	988	4	1,000	2	50	.....	.....	.....	.....	18	1,679	30
31	New York	23	4,651	60	88,709	84	2,880	55	20,284	.....	.....	172	76,977	31
32	North Carolina	2	1,220	12	5,145	6	258	6	660	.....	.....	26	7,141	32
33	North Dakota	6	90	7	2,659	2	95	2	220	.....	.....	19	2,969	33
34	Ohio	9	2,165	28	20,450	19	1,540	24	5,005	3	365	82	29,525	34
35	Oklahoma	11	800	15	4,422	5	117	6	295	1	69	37	5,583	35
36	Oregon	2	210	9	3,754	4	224	3	79	.....	.....	17	4,577	36
37	Pennsylvania	4	1,220	32	18,015	20	5,251	49	10,747	1	89	107	35,322	37
38	Rhode Island	2	274	10	3,511	.....	.....	4	295	.....	.....	16	4,080	38
39	South Carolina	3	704	7	2,701	6	619	3	150	.....	.....	19	4,280	39
40	South Dakota	10	841	7	2,457	2	62	.....	.....	.....	.....	19	3,371	40
41	Tennessee	4	1,202	11	3,693	7	224	6	352	2	250	30	5,521	41
42	Texas	10	1,980	18	6,952	7	171	6	500	13	1,469	54	10,452	42
43	Utah	2	84	6	737	3	205	1	30	.....	.....	12	1,056	43
44	Vermont	1	62	7	1,322	1	40	.....	.....	.....	.....	9	1,424	44
45	Virginia	7	1,235	17	7,973	9	161	9	850	.....	.....	42	10,184	45
46	Washington	14	1,748	14	4,324	10	779	6	388	.....	.....	44	7,490	46
47	West Virginia	1	13	11	2,616	1	35	2	95	.....	.....	15	2,759	47
48	Wisconsin	6	1,467	19	4,325	32	5,021	12	923	1	20	70	14,289	48
49	Wyoming	3	534	4	622	6	255	.....	.....	.....	.....	13	1,549	49
	Totals	310	62,352	682	321,399	529	51,945	452	65,985	80	7,302	1,992	509,083	

The greatest net gain, 189, is in hospitals having from 10 to 25 beds. Next comes the group of 51 to 100 beds, of which 135 were gained in the two years. The decade of most rapid growth in hospitals thus far has been the ten years from 1901 to 1910, inclusive. During that time 1,651 hospitals were established that were still running in 1923. How many more is not known. However, since the present

Ownership and Control of Hospitals

In the present era all of the government agencies that engage in furnishing hospital service of any type do so by means of taxation by which the burden is spread over the entire population. The federal government maintains 310 hospitals with a total of 62,352 beds; the various state governments have 632 hospitals with 321,399 beds; counties

maintain 539 hospitals with 51,945 beds; cities, 452 hospitals with 65,965 beds, and cities and counties combined maintain 59 hospitals with 7,892 beds. Altogether there are 1,992 governmental hospitals with 309,053 beds.

The majority of the hospital work of state and federal government is custodial. This is especially true of state hospitals, which are usually large nervous and mental institutions and tuberculosis sanatoriums. In a few states, notably Pennsylvania, West Virginia, Louisiana and Mississippi, some general hospitals are maintained at state expense. The bulk of the hospital work done by the federal government is in United States Army, Navy, Marine and Veterans' hospitals.

community at any time, Table 4 has been devised, showing separately hospitals that are under the control of local organizations, the federal and state being added merely to afford comparison and to account for all hospitals. There may be some question, depending on the point of view, as to the extent to which these hospitals, managed by local government and private agencies, are for community service. On the other hand, there are some federal and state institutions that are used for the local people; at least, they serve to relieve local hospitals of a part of their burden. For all particular purposes, however, the situation may be met at present, as shown in Table 4.

TABLE 3.—*Nongovernmental Hospitals*

	State	Denominational		Fraternal		Industrial		Individual and Partnership		Independent Associations		Total Nongovernmental		
		Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	
1	Alabama	12	627	1	50	2	450	10	1,013	10	682	71	2,822	1
2	Arizona	11	470			0	170	13	450	9	320	41	1,440	2
3	Arkansas	9	225	2	50	2	217	10	224	14	224	56	2,440	3
4	California	60	5,020	6	454	21	650	200	4,750	97	6,075	390	16,974	4
5	Colorado	22	2,105	1	320	5	405	91	1,405	25	1,024	150	5,040	5
6	Connecticut	10	1,210			1	6	25	757	21	4,207	68	6,210	6
7	Delaware	2	150					6	202	6	410	15	762	7
8	District of Columbia	10	1,600	1	7			9	71	10	1,444	30	3,127	8
9	Florida	4	277	2	160	1	50	27	551	19	823	46	1,861	9
10	Georgia	7	524	1	64	1	75	44	1,575	21	973	74	3,171	10
11	Idaho	11	350			0	18	17	300	5	115	33	1,005	11
12	Illinois	114	11,170	5	570	9	600	207	5,200	20	7,770	355	25,704	12
13	Indiana	25	1,650	2	110	2	130	67	1,510	19	705	105	4,100	13
14	Iowa	32	1,620	1	30	3	70	79	1,494	19	797	133	4,005	14
15	Kansas	29	2,537	1	50	0	225	52	1,060	23	773	121	4,695	15
16	Kentucky	20	1,760	1	170	1	100	69	1,251	14	1,000	89	3,781	16
17	Louisiana	16	1,326	3	99	4	170	24	697	15	1,249	62	3,540	17
18	Maine	6	370					32	660	10	949	48	2,029	18
19	Maryland	24	2,950					29	1,200	20	2,800	73	6,950	19
20	Massachusetts	39	3,710			5	60	170	2,000	100	6,017	300	11,787	20
21	Michigan	40	2,597	2	50	10	614	76	2,210	31	4,051	170	9,522	21
22	Minnesota	32	4,550			6	135	70	1,440	22	2,959	130	9,727	22
23	Mississippi	9	470					20	500	13	600	42	1,570	23
24	Missouri	50	5,170	3	260	10	600	88	1,251	29	1,249	180	10,530	24
25	Montana	23	1,645			0	200	21	805	5	275	55	2,980	25
26	Nebraska	25	2,020	3	32			63	1,545	11	649	102	3,650	26
27	Nevada	1	50			4	107	4	65	1	18	10	240	27
28	New Hampshire	10	445					22	605	10	950	42	1,997	28
29	New Jersey	19	2,200	1	27	1	50	46	1,200	46	5,215	122	8,692	29
30	New Mexico	10	600			5	145	15	325	9	502	39	1,654	30
31	New York	130	13,422	6	224	4	62	145	4,600	200	24,770	516	42,877	31
32	North Carolina	16	700	3	121	2	90	65	1,062	30	2,150	124	4,663	32
33	North Dakota	20	1,200			1	5	13	311	4	185	37	1,701	33
34	Ohio	59	5,160	2	120	4	51	104	2,200	67	5,125	230	13,280	34
35	Oklahoma	9	525					61	1,672	11	615	81	2,414	35
36	Oregon	10	1,040	1	10	2	20	20	600	17	1,000	70	2,880	36
37	Pennsylvania	71	7,981	5	127	4	62	122	3,720	104	15,410	306	27,300	37
38	Rhode Island	7	800			1	6	11	700	9	1,200	27	2,706	38
39	South Carolina	8	600					23	650	20	800	60	1,950	39
40	South Dakota	12	650			1	25	19	525	7	297	39	1,847	40
41	Tennessee	11	1,400	1	40	2	26	69	1,545	19	1,118	92	3,989	41
42	Texas	35	3,120	6	455	7	257	125	3,570	85	1,821	260	9,073	42
43	Utah	3	400			2	10	29	854	5	311	39	1,574	43
44	Vermont	5	277					17	455	11	681	33	1,504	44
45	Virginia	17	951			3	152	30	1,304	25	2,048	89	4,355	45
46	Washington	28	2,600	2	12	4	75	29	1,500	19	1,600	107	5,205	46
47	West Virginia	7	425			2	130	41	1,400	11	1,977	61	4,182	47
48	Wisconsin	54	4,420					39	1,445	32	2,102	140	7,945	48
49	Wyoming	3	30			2	45	14	387	4	180	23	642	49
	Totals	1,023	110,709	69	3,379	169	7,220	2,397	62,674	1,512	130,540	5,378	304,573	

NONGOVERNMENTAL HOSPITALS

The principal nongovernmental agencies in the hospital field are churches with 1,233 hospitals; fraternal orders, 68; industries, 168; individuals and partnerships, 2,397, and independent hospital associations, mainly local, 1,512. Altogether the nongovernmental agencies maintain 5,378 hospitals with 304,573 beds. As a rule, in the nongovernmental hospitals the majority of patients represent active medical and surgical cases.

The county hospitals, city hospitals, and city and county hospitals combined include largely general hospitals, but there are also some nervous and mental and an increasing number of municipal and county tuberculosis hospitals and some custodial. A special effort has been made to eliminate county almshouses and to include only the hospitals or actual hospital departments of such institutions.

HOSPITALS FOR LOCAL OR COMMUNITY USE

To get some idea of how adequate is that particular form of hospital service which is available to all people of any

The hospitals for local or community use, which in 1923 numbered 6,009, have now increased to 6,428, with an increase also in bed capacity (from 399,645 to 430,175) of 30,530, or 7.6 per cent., in the past two years. There have been gains in the hospital facilities of nearly all of the hospital agencies in the field, and this is rather striking in the case of hospitals conducted by churches, individuals and partnerships. There has also been a fairly strong gain in industrial hospitals as well as county and city hospitals, and those conducted by city and county combined. The gain by industrial and county and city hospitals is not striking.

The decrease of the hospitals conducted by local independent hospital associations is due in part to the difficulty which small and unstable organizations have experienced in maintaining them under modern demands. They have, therefore, been compelled to transfer their burden to some more stable organization, such as a church, city, county, or even to an individual or partnership. The bonding power of cities and counties to provide hospital facilities is being used more than ever before. The state and federal hospitals show an

increase of 121 hospitals, many of which were gained by taking over hospitals formerly maintained by local nongovernmental agencies. It is to be noted that during this period of rapid hospital development, the marked change seems to be one of shifting the burden of maintenance to supported agencies or to organizations that represent more stability and which are supported by larger groups of people.

TABLE 4.—*Hospitals for Local or Community Use*

Ownership or Control	Number of Hospitals		Number of Beds	
	1923	1925	1923	1925
Church	898	1,338	77,941	110,709
Fraternal	97	69	5,043	3,579
Industrial	149	143	5,720	7,259
Individual or partnership	1,782	2,227	65,779	82,571
County	495	520	49,671	51,945
City	415	492	64,289	65,985
City and county	25	29	4,701	7,388
Independent hospital associations	2,199	1,512	149,341	150,540
Total for community use	6,059	6,430	399,645	429,175
Federal	220	210	53,959	62,356
State	691	632	302,708	271,395
Total federal and state	921	942	356,677	333,751
Grand total hospital supply	6,980	7,370	755,722	813,926

COUNTIES WITH AND WITHOUT HOSPITALS

Among the total of 3,068 counties in the United States there are 1,367 counties that do not have within their borders any hospital for general local service as compared with 1,701 counties that do have such hospital facilities. The total number of counties with and without hospitals and the percentages of each are given by years for 1923 and 1924 for comparison in Table 5.

In 1920 only 44 per cent. of the counties had local hospital facilities located within the county; in 1923, 49.6 per cent., and in 1925, 55.4 per cent. In 1920 there were two states, Connecticut and New Hampshire, that had hospital service in every county. The state of Maine has since achieved that distinction.

It is not intended to advocate a general hospital in every county, since many counties, some of them populous, are well served by hospitals of adjoining counties. This is especially true of certain small counties in the north central and northeastern states. In the west, and to a less extent in the south, are still counties with inhabitants so few and widely scattered as not to justify a hospital at the present time. The importance of simply placing hospitals where they are needed cannot be overemphasized. In speaking of the hospital supply in terms of counties, it must be remembered that the county is an arbitrary unit of local government and not a unit of hospital service. However, the county is usually the most convenient unit in which to study the general distribution of hospitals.

COUNTY-OWNED HOSPITALS

Again, it is not the intention of this article to advocate the wholesale establishment of hospitals under county control however important that may be in certain instances where hospitals are not provided by other agencies. It is interesting to note that there is a pretty steady increase in the number of hospitals, general and special, that are maintained by county funds. Among the outstanding instances of this growth of county-owned hospitals are California, in which state 60 hospitals are maintained by county funds, other states coming in the following order: Wisconsin, 50 county hospitals; New York, 51; Indiana, 38; Pennsylvania, 29; Illinois and Michigan, 28 each, and Ohio, 26.

PHYSICIANS IN COUNTIES HAVING NO HOSPITALS

The 1,367 counties in the United States that have no local hospital service located within them have a total population of 17,677,254, or just one sixth (16.7 per cent.) of the population of the United States. In these counties are located 17,381 physicians, or a ratio of one physician to every 1,017 people. The number of such counties in each state, together with their aggregate population, number of physicians, and the ratio of physicians to the population, are given in Table 6. The prevailing ratio of 1,017 people to a physician in these counties forms an interesting study in comparison with the ratio of 724 people per physician for the entire country.

NUMBER OF INTERNS AND RESIDENT PHYSICIANS IN HOSPITALS

The most complete data that are available from recent reports of hospitals themselves regarding the use of interns and resident physicians are presented in Table 7. The table gives for each state the number and capacity of hospitals and the number of interns, and similar data relative to resident physicians. The distinction between the terms "intern" and "resident physician" is that by an intern is meant a recent graduate who is serving in the hospital to gain experience and instruction; while a resident physician is one who has supposedly completed an internship but who continues his service to improve his qualifications, usually in some specialty, or who is employed to assist in or to do the medical and surgical work of the hospital.

TABLE 5.—*Counties With and Without Hospitals*

State	Counties Having Hospital Service			Counties Not Having Hospital Service			Total Counties
	1920	1923	1925	1920	1923	1925	
Alabama	17	21	31	50	46	36	67
Arizona	12	11	9	2	3	5	14
Arkansas	19	25	21	57	50	44	75
California	46	52	54	12	6	4	58
Colorado	29	30	37	34	27	25	63
Connecticut	8	8	8	0	0	0	8
Delaware	1	2	2	2	1	1	3
Dist. Columbia	1	1	1	0	0	0	1
Florida	13	19	22	41	40	40	62
Georgia	28	32	41	124	125	119	160
Idaho	15	22	22	28	22	23	45
Illinois	61	68	74	41	36	28	102
Indiana	56	54	62	39	39	39	101
Iowa	59	72	73	43	27	26	99
Kansas	45	55	60	60	52	45	105
Kentucky	32	39	46	88	81	74	120
Louisiana	19	23	24	45	41	40	64
Maine	14	16	16	2	0	0	16
Maryland	13	16	15	11	8	9	24
Massachusetts	13	13	13	1	1	1	14
Michigan	48	57	69	35	28	20	89
Minnesota	68	67	74	19	19	13	87
Mississippi	25	27	29	69	66	70	99
Missouri	39	37	43	80	70	72	115
Montana	28	29	32	26	25	22	54
Nebraska	35	44	51	58	49	47	98
Nevada	13	13	13	4	4	4	17
New Hampshire	10	10	10	0	0	0	10
New Jersey	19	19	19	2	2	2	21
New Mexico	15	14	15	13	17	16	31
New York	59	57	60	8	5	2	62
North Carolina	49	45	52	60	58	48	100
North Dakota	24	28	29	22	27	25	53
Ohio	55	48	60	32	35	19	88
Oklahoma	27	33	43	50	44	34	77
Oregon	23	29	29	13	10	8	37
Pennsylvania	54	54	55	13	13	12	67
Rhode Island	3	4	4	2	1	1	5
South Carolina	19	20	21	27	26	25	46
South Dakota	21	23	27	46	46	42	69
Tennessee	23	23	33	74	72	62	95
Texas	64	79	98	187	175	157	255
Utah	9	11	15	20	18	14	29
Vermont	10	10	10	4	4	4	14
Virginia	29	31	35	71	69	65	100
Washington	24	29	33	15	9	6	39
West Virginia	27	26	28	29	29	27	55
Wisconsin	54	51	60	30	30	12	72
Wyoming	14	12	15	7	13	7	22
Totals	1,332	1,521	1,701	1,695	1,545	1,367	3,068*
Percentage	44.0	49.6	55.4	56.0	50.4	44.6	

* There were 3,027 counties in 1920; 3,066 in 1923.

The names of interns, their college and year of graduation, dates of their service, and other data were furnished by the hospitals on specially prepared blanks and similar blanks were used in supplying data about resident physicians. Separate totals are given for the United States, its Possessions, and Canada. In the United States proper, 4,703 interns are now being used by 871 hospitals which have a total capacity of 229,830 beds, and 3,133 resident physicians are found in 1,048 hospitals having an aggregate capacity of

344,997 beds. In collecting these figures resident owners were omitted and only salaried residents were included. Incidentally, it is found that about one half of the residents draw a salary of less than $2,000, and the remainder, from $2,000 to $3,000 and upward.

Adding the Possessions and Canada to the figures given for the United States proper, there is a total of 5,059 interns and 3,338 resident physicians. A total of 1,687 hospitals were found to be using interns or resident physicians or both.

The following pages give further details regarding both resident physicians and interns, including especially the data relative to internships in the hospitals approved for intern training by the Council on Medical Education and Hospitals. A list of hospitals so approved is given on page 971.

Resident Physicians in Each State and Proportions from Medical Colleges Within and Without the State

The same information that has just been presented regarding interns is given in Table 9 relative to 3,321 resident physicians, including the 146 reported in Canadian hospitals. The greatest numbers of resident physicians are found in New York with 527; California with 233; Massachusetts, 226; Pennsylvania, 195; Maryland, 175; Ohio, 158; Michigan, 130, and Illinois, 129. There are 246 resident physicians who graduated from foreign medical colleges. The majority of resident physicians in all but eight states are graduates of medical colleges of other states. The eight states which, naturally, are those having medical schools, are Georgia, Illinois, Kentucky, Michigan, Ohio, Pennsylvania, Vermont and Virginia.

COUNTIES WITHOUT HOSPITALS (BLACK) 1,367. POPULATION 17,877,254. PHYSICIANS 17,381.

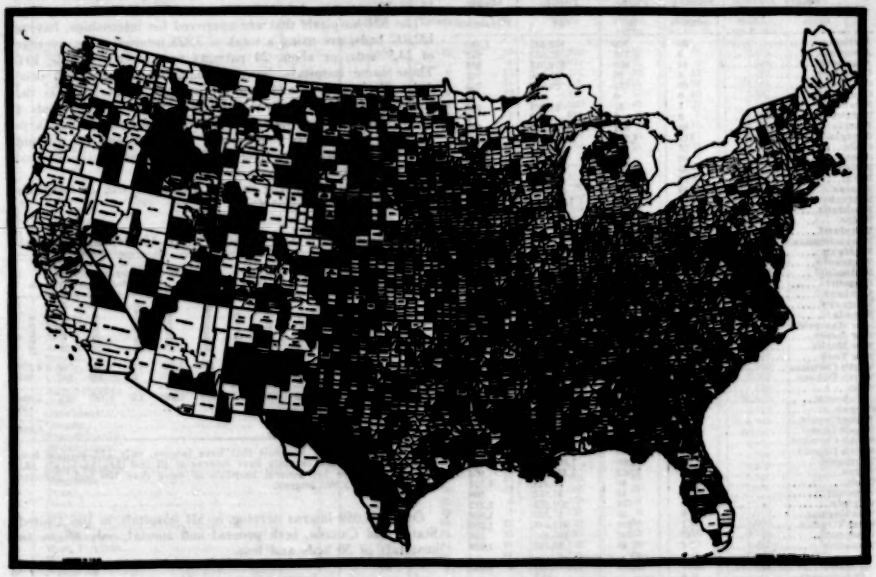


CHART SHOWING IN BLACK THE COUNTIES WITHOUT HOSPITALS

Interns in Each State and the Proportions from Medical Colleges Located Within and Without the State

Table 8 shows for each state the number of interns that come from medical colleges located within and those located without the state. The table, including Canada, shows that 2,845 interns are graduates of medical schools within the state in which they are serving internships, and 1,723 are from schools in other states. As might be expected, the hospitals in California draw interns more, 130, from medical colleges outside the state than from those, 107, within the state. Illinois, Massachusetts, Pennsylvania, Tennessee, Texas, Virginia, and others are decidedly the reverse. New York has 537 of its own graduates and gets 467 from elsewhere. Incidentally, the hospitals of New York are using as interns 197 graduates of foreign medical colleges; Pennsylvania, 64; Michigan, 32, and New Jersey, 25. A total of 441 foreign medical graduates are now serving internships in the hospitals in the United States.

Increasing Use of Interns by Hospitals

Several years ago a medical graduate who wanted an internship had to search for a hospital that would admit him. In recent years, however, the hospitals have been seeking interns. Indeed, interns have been in such demand, owing to the improved quality of medical education and medical graduates, that not only have many hospitals offered a salary or bonus but also, what is better, hospitals have provided such opportunities for the clinical instruction of interns as have made their internships educationally worth while.

Thus we see that whereas in 1914 the list of hospitals approved for internships, which included practically all the hospitals that would agree to take interns, numbered 508, with 88,000 beds and 2,667 interns, in 1925 after dropping from the list a score or more of hospitals that would not be approved, the list remaining contains 524 hospitals with 132,037 beds and 3,825 interns. In other words, since 1914 there has been an increase of 47 per cent. in the

number of interns serving in approved hospitals; there has been also an increase of 30 per cent. in the bed capacity of approved hospitals.

The Revised List of Approved Hospitals

The list of hospitals approved for internships (see page 971) was revised to February 10, 1925. The list was first published by the Council on Medical Education and Hospitals in 1914, in response to a growing demand for such a list for the guidance of medical graduates and others seeking a year or more of hospital experience. The Council has since revised the list year by year, according to a set of principles which was gradually developed, and published as "The Tentative Schedule of Essentials in a Hospital Approved for Internships,"[1] now revised and published in this issue under the title "Essentials in a Hospital Approved for Interns." (See page 978.)

The approved list at present contains only general hospitals that are in position to furnish well-rounded internships such as satisfy the medical colleges and the state boards as well as meet the almost universal demand of medical graduates for at least a year's hospital experience before either general practice or specialization. The Council also issues a list of hospitals that provide approved residencies in the specialties for graduates who have already served a general internship.

Table 6.—*Physicians in Counties Having No Hospitals*

State	Counties Having No Hospitals			
	Number of Such Counties	Physicians in	Population of	People per Physician
Alabama	38	700	870,888	1,243
Arizona	8	116	31,857	271
Arkansas	64	902	774,312	813
California	6	26	19,748	731
Colorado	39	175	137,250	785
Connecticut	0	0	0	0
Delaware	1	37	31,025	838
District of Columbia	0	0	0	0
Florida	40	324	308,125	685
Georgia	119	1,220	1,535,576	1,258
Idaho	22	97	150,307	1,554
Illinois	39	329	450,543	859
Indiana	39	545	404,995	743
Iowa	38	502	314,341	626
Kansas	65	417	381,297	914
Kentucky	76	1,020	1,020,531	1,000
Louisiana	49	587	727,980	1,239
Maine	0	0	0	0
Maryland	1	45	125,402	784
Massachusetts	1	7	6,371	910
Michigan	39	389	355,693	1,503
Minnesota	11	139	176,669	1,271
Mississippi	32	709	995,364	1,170
Missouri	77	1,249	1,180,980	950
Montana	32	69	101,463	1,470
Nebraska	61	247	260,719	1,055
Nevada	4	22	12,861	585
New Hampshire	0	0	0	0
New Jersey	2	76	32,825	432
New Mexico	18	252	159,925	1,270
New York	3	183	33,393	1,823
North Carolina	60	672	746,697	1,111
North Dakota	38	125	218,710	1,749
Ohio	39	257	283,709	1,103
Oklahoma	54	1,062	1,014,888	1,414
Oregon	0	0	0	0
Pennsylvania	12	224	227,703	1,016
Rhode Island	1	19	18,113	1,210
South Carolina	36	1,011	1,020,614	1,450
South Dakota	60	333	330,466	1,297
Tennessee	62	1,089	1,040,976	955
Texas	187	1,822	1,466,913	805
Utah	14	49	36,911	1,751
Vermont	4	40	41,676	1,042
Virginia	65	734	891,673	1,215
Washington	6	35	57,250	1,636
West Virginia	37	220	211,943	1,526
Wisconsin	72	332	135,490	408
Wyoming	7	45	66,745	1,483
Totals	1,887	17,881	17,677,254	1,017
Percentages	44.6		10.7	

1. J. A. M. A. 72:1757-1759 (June 14) 1919.

There were reported 5,059 interns of whom 3,825 are in the 524 approved hospitals, and 1,234 interns in 2,696 non-approved hospitals. This total of 5,059 interns compares favorably with the 3,669 interns reported in the census of one year ago, the increase being 1,390, or 37.9 per cent. In fact, there are 156 more interns now in approved hospitals than there were in all hospitals two years ago. Some of the factors that contribute to the increased number of interns now serving in hospitals are, (*a*) the increase in the number of medical graduates, (*b*) an extension of the term of internships in some hospitals, (*c*) state board and medical college requirements, and (*d*) the almost universal voluntary demand of medical graduates for hospital experience before entering practice.

The Right Number of Patients per Intern in Hospitals

Hospitals that have been able to get as many interns as they want are found to be using one intern to anywhere from 15 to 30 patients.

The 524 hospitals that are approved for internships, having 132,037 beds, are using a total of 3,825 interns, or an average of 34.5 beds, or about 24 patients per intern. (Table 10). These same hospitals, however, have more than 1,000 resident physicians in addition to interns. Experience is the safest guide. For general hospitals of 100 or more beds a good ratio is somewhere around 25 patients per intern, varying with the types of cases under treatment and the amount of work assumed by attending and resident physicians and by technicians.

The number of interns in relation to the size of hospitals is summarized as follows:

Number of Interns in Relation to Size of Hospital

Type of Hospital	25 Beds or Less		26-50 Beds		51-100 Beds		101-200 Beds		Over 200 Beds		Totals	
	Hospitals	Interns	Hospitals	Interns	Hospitals	Interns	Hospitals	Interns	Hospitals	Interns	Hospitals	Interns
General	7	3	20	23	101	267	403	1,466	139	1,609	709	4,379
Special	0	0	0	0	0	0	1	24	20	123	167	451
Totals	13	17	49	70	280	810	580	2,250	157	2,182	926	5,009
Unallocated interns												50
												5,059

Of the 709 general hospitals that have interns, only 188 general hospitals under 100 beds capacity have interns at all and they have only 383 interns, while the 581 general hospitals of more than 100 beds capacity have a total of 3,993 interns.

Of the 5,059 interns serving in all hospitals in the United States and Canada, both general and special, only 87 are in hospitals of 50 beds and less.

Internships for Women

The changed attitude toward women in professions, and particularly the increasing willingness of the medical profession to admit women to its ranks, is reflected in the fact that 128 out of 524 hospitals on the approved list now state that they admit women interns.[2] In 1923, 135 out of 510 hospitals on the approved list favored the admission of women interns. The 128 hospitals now admitting women use a total of 1,385 interns, whereas only about 214 women graduate in medicine each year. Therefore, so far as the number of places open to women graduates is concerned, all should be able to find internships and a wide range of choice is provided for them.

Medical Libraries in Hospitals Approved for Internships

Table 10 shows that the percentage of approved hospitals that have medical libraries has increased from 40.7 per cent. in 1914 to 77 per cent. in 1925. This is perhaps an index of the increased stress that is being placed on the educational functions of hospitals. (See "Schedule of Essentials in a

2. See list of hospitals approved for internships, page 971.

The Supply of Interns

The Council's recent census of interns and resident physicians serving in hospitals brought replies from 3,220 hospitals, including every one of the 524 hospitals that are approved for interns, and 2,696 hospitals that are not on the approved list. This covers practically every hospital that uses interns.

Hospital Approved for Interns," page 971; also "Suggestions for the Medical Library of the Hospital," page 980.)

SALARIES OF INTERNS IN APPROVED HOSPITALS—1925

Another evidence that internships are valued chiefly for their educational opportunities is the fact that 2,187 out of a total of 3,825 interns in approved hospitals are serving without pay. In 1923 only 1,660 were without salary. Eight hospitals employing 50 interns pay both a salary and a bonus while none apparently used this method in 1923. There has also been an increase in the number of hospitals granting a bonus only.

WHEN INTERNSHIPS EXPIRE IN GENERAL HOSPITALS

The majority of the general hospitals using interns change interns at the middle of the year—about the time the majority of students finish their medical course. The central columns of Table 13 show that 2,794 internships are reported as terminating in June and July, which is assumed to mean that the intern service actually closes with June 30, and 486 interns complete their terms of service December 31 (columns

TABLE 7.—*The Number of Interns and Resident Physicians in Hospitals*

	State	Hospitals Having Interns			Hospitals Having Resident Physicians			Total Hospitals Having Interns, Resident Physicians, or Both	Beds in Hospitals That Have Interns, Resident Physicians, or Both	Total Interns and Resident Physicians	
		Hospitals	Beds	Interns	Hospitals	Beds	Resident Physicians				
1	Alabama	9	1,000	17	10	2,220	22	13	2,674	39	1
2	Arizona	....	.....	....	8	1,054	15	8	1,054	15	2
3	Arkansas	2	450	6	10	1,133	22	12	1,583	28	3
4	California	69	13,059	255	81	21,940	225	94	24,991	480	4
5	Colorado	7	1,089	18	17	4,827	57	22	5,627	75	5
6	Connecticut	16	6,410	94	19	5,557	48	27	7,702	132	6
7	Delaware	3	321	6	4	325	6	6	1,021	12	7
8	District of Columbia	9	3,540	81	10	2,980	100	15	4,520	181	8
9	Florida	3	373	6	8	2,949	26	11	3,322	32	9
10	Georgia	16	2,079	60	16	4,338	31	27	7,338	91	10
11	Idaho	1	53	2	....	.....	....	1	53	2	11
12	Illinois	69	14,513	419	42	10,621	129	92	24,778	548	12
13	Indiana	19	3,359	72	24	5,570	46	35	7,338	118	13
14	Iowa	7	1,705	28	15	4,172	55	21	7,162	83	14
15	Kansas	8	1,250	22	16	4,202	42	21	5,088	62	15
16	Kentucky	7	1,160	20	17	6,350	60	22	7,350	80	16
17	Louisiana	11	2,205	35	15	3,370	41	22	5,583	127	17
18	Maine	6	322	10	10	1,200	20	13	2,270	30	18
19	Maryland	21	3,551	111	22	5,776	175	37	8,782	283	19
20	Massachusetts	69	13,277	314	44	15,208	226	95	25,479	540	20
21	Michigan	24	5,710	203	40	10,981	120	52	13,548	323	21
22	Minnesota	23	5,265	95	25	7,499	78	40	10,036	173	22
23	Mississippi	1	200	6	12	1,320	20	12	1,520	26	23
24	Missouri	29	6,141	182	41	12,575	98	55	15,910	280	24
25	Montana	4	1,007	7	4	1,785	8	7	2,682	15	25
26	Nebraska	10	1,333	36	9	3,099	27	19	5,029	63	26
27	Nevada	....	.....	....	....	.....	....	....	.....	....	27
28	New Hampshire	....	.....	....	3	1,075	10	3	1,075	10	28
29	New Jersey	42	11,246	176	29	6,428	62	52	12,686	238	29
30	New Mexico	....	.....	....	5	546	10	5	546	10	30
31	New York	142	71,787	1,956	125	67,240	267	224	87,088	1,729	31
32	North Carolina	7	870	12	23	5,004	67	27	5,550	79	32
33	North Dakota	....	.....	....	2	250	4	2	250	4	33
34	Ohio	45	8,873	221	81	10,288	150	72	22,870	379	34
35	Oklahoma	4	480	11	15	3,260	30	17	3,512	41	35
36	Oregon	7	1,701	28	6	1,140	15	11	2,580	41	36
37	Pennsylvania	89	20,266	564	81	23,772	195	142	36,587	749	37
38	Rhode Island	6	1,730	23	6	2,954	71	10	3,674	69	38
39	South Carolina	6	971	16	4	321	5	10	1,292	21	39
40	South Dakota	....	.....	....	7	2,222	14	7	2,222	14	40
41	Tennessee	15	2,272	52	29	4,128	52	39	5,340	102	41
42	Texas	21	3,770	70	21	4,699	61	44	7,099	139	42
43	Utah	5	980	12	4	680	4	6	1,010	16	43
44	Vermont	3	1,075	10	3	1,025	8	4	1,525	18	44
45	Virginia	19	2,620	69	22	5,020	84	31	7,005	114	45
46	Washington	9	1,350	21	16	4,135	25	15	5,152	46	46
47	West Virginia	7	840	14	11	2,743	20	17	3,421	34	47
48	Wisconsin	25	4,719	82	23	5,103	69	40	7,089	120	48
49	Wyoming	1	60	3	4	344	10	4	344	13	49
50	Totals	671	220,039	4,703	1,049	344,997	3,128	1,566	435,709	7,826	50
51	U. S. Possessions	11	4,488	92	12	1,823	42	19	4,940	94	51
52	Canada	54	12,970	254	54	21,302	146	84	27,101	609	52
53	Unlocated	17	.....	50	7	.....	17	21	.....	67	53
54	Totals	753	247,298	5,099	1,121	367,622	3,333	1,687	467,970	8,597	54

There certainly can be nothing wrong about giving some financial assistance along with educational opportunities to the intern in return for the service which he renders. This is justified also, since the finances of the average graduate by the time he has finished his medical course are such that even a small allowance is acceptable. It is suggested that the increasing custom of paying a bonus at the end of a certain period for satisfactory service has in it possibilities of good. Interns' salaries will always be governed by supply and demand. Hospitals that want interns are going to get them, without pay, if they can, but they are going to have them even if they must pay them, and this is true up to the point where the cost of interns exceeds the cost of the next alternative, which at the present time is the hiring of resident physicians. On the other hand, interns are demanding, and will continue to demand, educational advantages, and are going to serve internships in hospitals that afford these advantages, pay or no pay.

WHEN INTERNSHIPS EXPIRE IN GENERAL HOSPITALS

The majority of the general hospitals using interns change interns at the middle of the year—about the time the majority of students finish their medical course. The central columns of Table 13 show that 2,794 internships are reported as terminating in June and July, which is assumed to mean that the intern service actually closes with June 30, and 486 interns complete their terms of service December 31 (columns for December and January); while 1,013 internships end during the other months of the year. The smallest number terminating in any one month is 52, in February.

It is noticeable that a comparatively large number of internships end at other than the middle or end of the year in Illinois, Massachusetts, New York, and Pennsylvania. There are 246 interns the termination of whose internship was not definitely stated.

YEARS SINCE GRADUATION OF INTERNS NOW SERVING IN (A) GENERAL AND (B) SPECIAL HOSPITALS

A separate tabulation was made of 4,472 interns to find out how long it has been since they finished their medical college course. As would be expected, it is found that the majority of them, 3,062, are 1924 graduates; there are 891

that graduated in 1923; 269 in 1922, and a diminishing number for previous years summarized as follows, (A) indicating number of interns in general hospitals, and (B) the number in special hospitals:

	1924	1923	1922	1921	1920	1919	1918	Before 1918	Total
A.....	2,780	798	212	58	17	20	14	45	3,953
B.....	272	93	57	39	14	7	3	36	519
	3,052	891	269	97	31	27	17	81	4,472

Evidently the majority of those now serving internships who graduated before 1923 have had more or less experience in the practice of medicine and are taking their internship through educational motives rather than to satisfy the requirements for graduation or licensure.

TABLE 8.—*Number of Interns in Each State; Proportion that are from Medical Colleges Located Within and Colleges Without the State*

State	Interns From Schools Within the State	From Schools in Other States	From Foreign Medical Colleges	Total Interns
Alabama†	0	17	0	17
Arizona*	0	0	0	0
Arkansas	4	2	0	6
California	107	120	18	255
Colorado	6	11	1	18
Connecticut	22	55	7	84
Delaware*	0	4	2	6
District of Columbia	41	21	1	63
Florida*	0	6	0	6
Georgia	51	8	1	60
Idaho*	0	2	0	2
Illinois	347	52	17	416
Indiana	39	30	3	72
Iowa	27	10	1	38
Kansas	8	13	2	23
Kentucky	21	6	2	29
Louisiana	30	56	0	86
Maine*	0	9	1	10
Maryland	69	35	7	111
Massachusetts	225	70	19	314
Michigan	108	68	32	208
Minnesota	61	29	5	95
Mississippi†	0	6	0	6
Missouri	117	63	2	182
Montana*	0	5	2	7
Nebraska	23	3	0	26
Nevada*	0	0	0	0
New Hampshire†	0	0	0	0
New Jersey*	0	151	25	176
New Mexico*	0	0	0	0
New York	537	469	197	1,203
North Carolina†	0	12	0	12
North Dakota†	0	0	0	0
Ohio	117	87	17	221
Oklahoma	8	3	0	11
Oregon	21	5	0	26
Pennsylvania	308	124	64	496
Rhode Island*	0	27	1	28
South Carolina	15	1	0	16
South Dakota†	0	0	0	0
Tennessee	69	12	0	82
Texas	56	20	0	76
Utah†	0	12	0	12
Vermont	10	0	0	10
Virginia	38	21	1	60
Washington*	0	17	4	21
West Virginia†	0	12	2	14
Wisconsin	39	21	7	67
Wyoming*	0	3	0	3
U. S. Possessions	24	21	7	52
Canada	254	0	0	254
Totals	2,865	1,723	441	5,029
Unlocated	....	....	....	50
				5,079

* No medical college in the state.
† No medical college giving full course.

YEARS SINCE GRADUATION OF RESIDENT PHYSICIANS NOW SERVING IN (A) GENERAL AND (B) SPECIAL HOSPITALS

While the majority of interns now in hospitals are recent graduates, the reverse is true relative to resident physicians as indicated by the following summary, in which (A) indi-

TABLE 9.—*Number of Resident Physicians in Each State; Proportion that are from Medical Colleges Located Within and Colleges Without the State*

State	Resident Physicians From Schools Within the State	From Schools in Other States	From Foreign Medical Colleges	Total Resident Physicians
Alabama†	3	19	0	22
Arizona*	0	15	0	15
Arkansas	3	19	0	22
California	77	120	17	220
Colorado	8	49	1	57
Connecticut	1	41	6	48
Delaware*	0	5	1	6
District of Columbia	23	76	1	100
Florida*	0	25	0	25
Georgia	17	14	0	31
Idaho*	0	0	0	0
Illinois	89	35	5	129
Indiana	20	24	2	46
Iowa	15	38	2	55
Kansas	6	35	1	42
Kentucky	24	15	1	40
Louisiana	15	26	0	41
Maine*	5	13	2	20
Maryland	69	100	6	175
Massachusetts	108	107	20	235
Michigan	61	56	12	129
Minnesota	23	53	2	78
Mississippi†	0	26	0	26
Missouri	41	46	1	88
Montana*	0	7	1	8
Nebraska	9	17	1	27
Nevada*	0	0	0	0
New Hampshire†	3	6	1	10
New Jersey*	0	50	13	63
New Mexico*	0	9	1	10
New York	196	244	89	527
North Carolina†	0	67	0	67
North Dakota†	0	4	0	4
Ohio	79	67	12	158
Oklahoma	11	38	1	50
Oregon	9	6	0	15
Pennsylvania	107	67	21	195
Rhode Island*	0	19	2	21
South Carolina	2	3	0	5
South Dakota†	0	12	2	14
Tennessee	25	27	1	53
Texas	20	41	0	61
Utah†	0	4	0	4
Vermont	5	3	0	8
Virginia	33	21	0	54
Washington*	0	21	4	25
West Virginia†	0	18	2	20
Wisconsin	11	51	6	68
Wyoming*	0	10	0	10
U. S. Possessions	29	9	4	42
Canada	140	1	5	146
Totals	1,272	1,803	246	3,321

* No medical college in the state.
† No medical college giving full course.

TABLE 10.—*Hospitals Approved for Internships by the Council on Medical Education and Hospitals*

	1914	1916	1920	1921	1923	1925
Hospitals	508	519	469	482	510	524
Beds	88,000	92,464	105,987	108,883	121,760	122,627
Interns	2,667	2,737	2,960	2,982	3,119	3,025
Hospitals that have medical libraries	207	215	229	227	397	402
	40.7%	41.4%	48.8%	49.1%	75.8%	77%
Hospitals that admit women interns	.....	.....	.....	.....	135	129

TABLE 12.—*Salaries of Interns in Approved Hospitals, 1925*

	Number of Hospitals		Number of Interns	
	1923	1925	1923	1925
No salary	195	192	1,020	2,107
$25 per month or less	151	148	407	395
$26 to $50 per month	96	95	303	270
$51 to $100 per month	15	15	44	42
Over $100 per month	2	2	27	40
Salary and bonus	...	8	...	39
Bonus only	8	6	24	27
Fees only	3	1	10	9
No fixed amount	23	22	78	87
Do not say	20	34	46	89
Totals	510	524	3,119	3,025

cates residents serving in general hospitals, and (B) residents in special hospitals:

	1924	1923	1922	1921	1920	1915-1919	1910-1914	1900-1909	Before 1900	Total
A.....	87	292	180	80	70	152	304	220	81	1,191
B.....	58	98	100	108	94	262	270	418	214	1,731
	145	390	280	188	164	414	574	544	295	2 922

The 87 resident physicians in general hospitals and the 58 resident physicians in special hospitals who graduated in 1924 are all, except two, from medical colleges that require a year's internship as a prerequisite to graduation, and therefore served their general internship prior to taking up their present residency. How many of the total number of residents now serving in hospitals have had previous general internship is not known. It is known, however, that at the present time there is a very decided tendency on the part of medical graduates to serve a general internship as a foundation for subsequent specialization, whether it is required or not.

MEDICAL SCHOOLS FROM WHICH INTERNS GRADUATED

This year for the first time in Table 14 statistics are given showing from what colleges all but 50 of the 5,059 interns graduated. Thirteen colleges furnished 100 or more interns each, the five largest numbers graduating from Harvard, 208; Jefferson, 187; Rush, 183; University of Pennsylvania, 176, and the University of Michigan, 166. Of the Canadian medical schools, the two largest numbers furnished were by the University of Toronto, 213, and McGill University, 157.

Medical Schools from Which Interns Graduated

	Graduates Now Serving Internships	In Approved Hospitals	In Non-approved Hospitals	In General Hospitals	In Special Hospitals
Class A schools.....	4,410	3,298	1,112	3,881	555
Class B schools.....	208	85	123	178	30
Class C schools.....	41	30	10	38	3
Foreign and unclassified.	249	105	141	208	41
Unlocated.....	50	.....	.....	.....	.....
Totals.....	5,059	3,598	1,416	4,370	631

It is noteworthy that of the 5,059 interns, 3,593 were in approved hospitals, and 1,416 were in unapproved hospitals. Note also that of the 3,593 interns in approved hospitals, 3,298, or 91.2 per cent., came from Class A schools.

Requirements of Medical Colleges Relative to Internships

Following is a résumé of the requirements relative to internships by those medical schools that make the fifth or intern year a prerequisite to the M.D. degree:

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL.—One year in "an approved hospital or laboratory." The hospital must be approved by the Council on Medical Education and Hospitals of the A. M. A. and the Medical Board of the University. Each student is to be under the direct supervision of some member of the hospital staff. No salary, or bonus, other than board is to be allowed. Signed reports are to be sent to the Dean's office, quarterly and with each change of service, on blanks supplied by the medical school.

STANFORD UNIVERSITY SCHOOL OF MEDICINE.—One year, rotating in all major departments of medicine; regular staff in each department, making regular rounds, instructing interns; laboratory in charge of resident pathologist; x-ray department with competent actinographer; resident physician. Laboratory work may be substituted for the internship.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE.—Twelve months in a hospital affiliated with or approved by the University. Research work may be substituted.

RUSH MEDICAL COLLEGE.—Internship in a hospital approved by the Faculty or advanced work as a fellow or research student. The Faculty has its own approved list. The intern year is administered by the Faculty through the Committee on Fifth Year and a set of supervisors, by means of bimonthly reports required from the hospitals on blanks supplied by the College.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.—Twelve months in a hospital approved by the Faculty or a year of research. The hospital reports to the Dean bimonth... Has its own list of hospitals where internships may be accepted without consulting the Faculty.

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Internship, advanced laboratory work or public health study for one year. Internship must be in a hospital of at least 100 beds; rotating in medicine, surgery, obstetrics, gynecology and pediatrics. Pathologist and roentgenologist are to have M.D. degree. Salary is limited to $25 per month. Reports are made at regular intervals. Intern's work is supervised and certified to the school by the hospital.

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE. — Requires twelve months, including one month vacation; medical, surgical, obstetrical and laboratory services. Reports are made on blanks supplied by the University. Intern must submit a thesis.

LOYOLA UNIVERSITY SCHOOL OF MEDICINE.—Internship must be rotating, including medicine, surgery, obstetrics, gynecology, anesthetics not to exceed sixty cases and laboratory not over six weeks. Reports are

TABLE 14.—*Medical Colleges and Where Their Graduates Serve Internships*

Name of College	Rating	Number of Graduates				
		Graduates Now Interns	In Approved Hospitals	In Nonapproved Hospitals	In General Hospitals	In Special Hospitals
University of Alabama.....	A	9	9	2	9	0
University of Arkansas.....	A	7	3	4	7	0
College of Med. Evangelists	A	53	44	9	51	2
Stanford University.....	A	25	21	4	24	1
University of California....	A	51	49	2	49	2
University of Colorado.....	A	12	9	3	11	1
Yale University	A	58	49	9	50	8
Georgetown University	A	41	37	4	39	2
George Washington Univ..	A	21	16	7	18	3
Howard University.....	A	21	21	0	20	1
Emory University	A	70	48	22	59	11
University of Georgia.....	A	29	18	10	28	1
Chicago Medical School....	C	17	11	6	16	1
Loyola University	A	32	25	7	31	1
Northwestern University	A	154	134	20	139	14
Rush Medical College.....	A	183	159	30	174	9
University of Illinois.....	A	118	112	6	106	12
Indiana University.....	A	79	54	25	60	19
State University of Iowa...	A	46	43	3	40	6
University of Kansas.....	A	24	17	7	21	3
University of Louisville....	A	45	32	13	40	5
Tulane University	A	100	86	14	89	11
Johns Hopkins University..	A	68	67	22	58	11
University of Maryland.....	A	91	71	20	87	4
Boston Univ. School of Med.	A	80	64	16	80	0
College of P. and S., Boston	C	4	2	2	4	0
Harvard University	A	208	168	45	174	34
Middlesex Coll. of M. and S.	C	9	9	0	9	0
Tufts College Med. School.	A	142	114	28	128	16
Detroit Coll. of M. and S...	A	37	29	8	35	2
University of Michigan.....	A	166	121	45	122	44
University of Minnesota....	A	100	94	6	91	9
Kansas City Coll. of M. & S.	C	1	0	1	1	0
St. Louis Coll. of P. and S.	C	10	8	2	8	2
St. Louis University.....	A	85	74	20	82	11
Washington University	A	68	58	15	59	9
Creighton Medical College..	A	40	15	25	35	5
University of Nebraska.....	A	64	42	22	54	10
Albany Medical College.....	A	14	12	2	1	13
Columbia U. Coll. of P. & S.	A	141	112	29	128	13
Cornell University	A	80	72	17	61	8
Long Island College.....	A	78	60	18	79	0
New York Homeo. College..	B	20	15	11	15	1
Syracuse University	A	48	32	11	30	5
University and Bellevue....	A	134	98	41	110	16
University of Buffalo.....	A	70	69	1	62	4
Eclectic Medical College...	B	22	4	18	22	0
Ohio State University.....	A	52	42	10	46	6
University of Cincinnati...	A	70	55	15	64	6
Western Reserve University.	A	41	31	10	34	7
University of Oklahoma.....	A	21	17	4	21	0
University of Oregon.....	A	42	37	5	38	4
Hahnemann, Philadelphia ..	A	31	30	21	29	2
Jefferson Medical College..	A	187	149	27	165	22
Temple University	B	19	9	2	16	3
University of Pennsylvania.	A	176	159	17	161	15
University of Pittsburgh...	A	38	34	3	37	1
Woman's Med. Coll. Pa.....	A	27	21	6	27	0
Medical College of S. C. ..	A	21	14	7	19	2
Meharry Medical College....	A	10	8	2	8	2
University of Tennessee....	A	37	27	10	31	6
Vanderbilt University	A	44	30	14	39	5
Baylor University	A	28	14	12	20	8
University of Texas.....	A	79	67	12	67	12
University of Vermont.....	A	49	35	14	37	12
Medical College of Virginia.	A	43	34	9	37	6
University of Virginia.....	A	57	44	13	47	10
Marquette University	A	42	30	12	29	13
CANADA						
Dalhousie University	B	8	4	4	6	2
Laval University	B	4	0	4	4	0
Manitoba Medical College..	A	46	11	35	36	10
McGill University	A	157	46	111	129	28
Montreal R. of M. and S....	B	13	3	10	12	1
Queen's University	B	54	21	33	37	17
University of Alberta.....	A	1	0	1	1	0
University of Toronto.....	A	213	68	145	188	25
Western University	B	20	9	11	15	5
MISCELLANEOUS						
U. S. Possessions.....	.....	25	22	3	25	0
Foreign colleges	.....	217	102	111	191	26
Unclassified	.....	104	57	47	87	17
Unlocated	.....	50	.....	.....	.....	.....
Totals.....	.....	5,059	3,593	1,416	4,370	631

required regularly by sponsors who are members of the hospital staff, selected by the School of Medicine.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE.—Requires an intern year of at least twelve months. An additional year is urged.

COLLEGE OF MEDICAL EVANGELISTS.—The fifth or intern year is required for graduates, beginning with the class of 1926. Requirements and regulations are now being formulated.

DETROIT COLLEGE OF MEDICINE AND SURGERY.—Every student shall serve as an intern in a teaching hospital for at least one year. Laboratory work may be substituted. The Faculty requires quarterly reports and a thesis.

NORTH DAKOTA has required that since January, 1918, each applicant present a certificate stating he has served a year's internship in an accredited hospital.*

WASHINGTON has required since 1919 one year's internship in a thoroughly equipped hospital which shall have at least twenty-five beds for each intern, devoted to the treatment of medical, surgical, gynecological and special diseases. Each intern must have had a service of six weeks in the maternity department of some hospital and must have participated in the attendance upon six confinements. Applicants who graduated prior to July 1, 1919, may offer two years' active practice, acquired prior to that date, in lieu of the internship.*

TABLE 13.—*When Internships Expire in General Hospitals*

	State	No. Hospitals	No. Interns in General Hospitals	Internships Expire In												
				Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Indef.	
1	Alabama	8	10	....	....	....	....	....	3	9	1	1	1	....	....	1	1
2	Arizona	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	2
3	Arkansas	2	6	....	....	....	....	....	....	6	....	....	....	....	....	....	3
4	California	35	225	4	....	....	20	10	55	80	16	2	3	....	....	19	4
5	Colorado	7	10	5	....	....	....	1	2	10	....	....	....	....	....	....	5
6	Connecticut	12	75	4	....	4	4	3	50	34	1	3	4	4	....	4	6
7	Delaware	3	6	1	....	....	....	....	....	6	1	....	....	....	....	....	7
8	District of Columbia	6	44	1	....	....	....	....	17	17	....	7	....	....	....	2	8
9	Florida	3	6	....	....	....	....	....	4	2	....	....	....	....	....	....	9
10	Georgia	15	59	7	....	1	....	1	23	29	....	....	1	....	....	6	10
11	Idaho	1	2	....	....	....	....	....	....	2	....	....	....	....	....	....	11
12	Illinois	56	386	72	3	6	22	2	47	145	9	19	38	1	70	32	12
13	Indiana	16	69	....	2	....	....	....	22	10	3	2	....	....	....	24	13
14	Iowa	7	38	....	....	....	1	....	3	24	....	....	....	....	....	10	14
15	Kansas	0	22	....	....	....	....	....	2	10	2	....	....	....	....	....	15
16	Kentucky	7	39	....	....	....	....	....	6	19	1	....	....	....	....	2	16
17	Louisiana	9	83	....	....	....	....	....	14	65	1	....	....	....	....	3	17
18	Maine	4	9	....	....	....	....	....	1	2	....	6	....	....	1	....	18
19	Maryland	16	108	....	....	....	....	....	12	68	7	9	....	....	....	12	19
20	Massachusetts	40	250	7	5	41	9	6	38	47	6	32	8	34	19	5	20
21	Michigan	19	165	14	....	....	....	....	34	60	29	9	2	1	9	....	21
22	Minnesota	18	83	5	....	....	....	....	16	30	1	1	....	....	25	10	22
23	Mississippi	1	6	....	....	....	....	....	....	....	....	6	....	....	....	....	23
24	Missouri	22	156	1	....	....	....	....	92	60	....	....	3	....	....	....	24
25	Montana	3	4	....	....	....	....	....	....	2	....	....	....	....	....	2	25
26	Nebraska	10	36	....	....	....	....	....	11	13	1	....	....	....	8	3	26
27	Nevada	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	27
28	New Hampshire	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	28
29	New Jersey	35	157	7	2	2	7	....	32	41	7	9	9	3	15	23	29
30	New Mexico	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	30
31	New York	123	971	165	30	28	22	12	191	284	34	51	37	27	48	65	31
32	North Carolina	6	10	....	....	....	....	....	....	7	1	....	....	....	....	2	32
33	North Dakota	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	33
34	Ohio	36	211	1	....	....	....	....	100	98	1	....	....	....	....	2	34
35	Oklahoma	4	11	....	....	....	....	....	10	1	....	....	....	....	....	....	35
36	Oregon	6	24	1	....	....	....	....	5	15	1	....	....	....	1	1	36
37	Pennsylvania	79	469	22	3	3	5	5	129	240	12	20	14	7	19	2	37
38	Rhode Island	4	22	4	....	....	5	....	1	8	1	1	4	....	....	....	38
39	South Carolina	6	16	....	....	....	....	....	6	6	....	....	....	....	....	2	39
40	South Dakota	0	0	....	....	....	....	....	....	....	....	....	....	....	....	....	40
41	Tennessee	15	82	....	....	....	....	....	22	28	....	1	1	....	1	1	41
42	Texas	17	71	2	....	....	....	....	36	31	....	....	....	....	....	2	42
43	Utah	3	22	....	....	....	....	....	....	12	....	....	....	....	....	....	43
44	Vermont	2	8	....	....	....	....	....	....	6	....	2	....	....	....	....	44
45	Virginia	14	54	....	....	....	....	3	22	26	....	....	....	....	....	3	45
46	Washington	8	21	....	....	....	....	....	3	18	....	....	....	....	....	....	46
47	West Virginia	6	12	....	....	....	....	....	1	10	....	....	....	....	....	1	47
48	Wisconsin	22	49	....	....	....	....	....	10	27	1	3	....	....	4	4	48
49	Wyoming	1	3	....	....	....	....	....	3	....	....	....	....	....	....	....	49
50	Totals	716	4,100	321	51	93	98	51	1,009	1,021	135	183	113	77	154	214	50
51	U. S. Possessions	10	51	....	....	23	....	....	2	7	1	4	7	2	1	6	51
52	Canada	43	227	4	1	....	4	12	47	114	2	4	5	....	6	29	52
53	Totals	769	4,378	325	52	106	98	63	1,058	1,142	138	191	125	79	161	249	53

Requirements of State Boards Relative to Internship

A résumé of the requirements of approval of hospitals for intern service by the various states:

Pennsylvania	Illinois
New Jersey	Michigan
Alaska	Iowa
Rhode Island	South Dakota
North Dakota	Utah
Washington	Delaware

PENNSYLVANIA has required one year's internship since 1914. Hospital must have twenty-five beds to each intern and must be devoted to medical, surgical, gynecological and special diseases. It must provide maternity service of at least six weeks and participation in six confinements. Hospital must also provide clinical laboratory, anesthesia department, complete records and provision for a full rotational service.

NEW JERSEY has required one year's internship since 1916. Applicants graduated before July 4, 1903, and having at least five years' practice since graduation may be examined without the internship requirements.

ALASKA has required one year's internship since 1917. Applicants are exempted from internship requirements if they have been licensed and engaged in active practice four years.

RHODE ISLAND has required one year's internship since 1917. The entire service must be rendered subsequent to date of graduation from Class A medical colleges. Special work gives 25 per cent. credit.

ILLINOIS requires that all applicants who graduated since June, 1923, must have completed a year's internship in a hospital approved by the Department of Registration and Education.*

MICHIGAN has required since 1922 that all applicants who matriculate in the season of 1917-1918 and thereafter, will be required to have served a year's internship in a recognized hospital. Subsequent to Jan. 1, 1926, interns will be required to take a clinical-practical examination.*

IOWA has required since July 1, 1923, that all applicants must have served for not less than one year as an intern in a general hospital approved by the Medical Council and the State Board of Medical Examiners. A year spent as laboratory assistant in any Class "A" medical college may be substituted for the hospital internship. Recent graduates who have not completed the internship may present credentials and upon endorsement may be permitted to be examined for license.

SOUTH DAKOTA requires that applicants who graduated after Jan. 1, 1925, must have served not less than one year as an intern in a thoroughly equipped hospital. Applicants who graduated prior to Jan. 1, 1925, may offer two years' active practice, acquired prior to that date, in lieu of the internship.*

DELAWARE will require, beginning in 1928, one year's internship in a hospital approved by the Medical Council.

UTAH requires that all students matriculating after July 1, 1926, must serve one year as an intern in a hospital approved by the department.*

3. From A. M. A. "Laws (Abstract) and Board Rulings."

HOSPITALS APPROVED FOR INTERNSHIPS

By the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.
Revised to February 10, 1925

The following general hospitals containing 132,037 beds are considered in position to furnish acceptable internships for medical graduates. For approved graduate medical schools, also hospitals providing approved residencies in certain specialties, send 10 cents for list.

HOSPITALS, 534; INTERNSHIPS, 3,825

Name of Hospital	Location	Number of Beds				Interns		Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Maternity	Med. Library	Salary per Mo.	Training School for Nurses
		Surgical	Medical	Other	Total	Number in Hospital	By Appt. or Exam.								
ALABAMA															
Hillman Hospital	Birmingham	35	35	65	100	5	Ap.	April	1 yr.	yes	yes	yes	yes	$10	yes
City Hospital	Mobile	75	40	15	130	2	Ap.	May	1 yr.	yes	yes	yes	yes	25	yes
J. A. Andrew Memorial Hosp. (col.)[1]	Tuskegee Institute	27	40	12	75	2	Ap.	July	1 yr.	yes	yes	yes	yes		yes
ARKANSAS															
St. Vincent's Infirmary	Little Rock	90	25	35	150	4	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
CALIFORNIA															
Fresno County Hospital	Fresno	25	100	67	225	6	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
Loma Linda Sanitarium and Hosp.	Loma Linda	yes	yes	yes	150	1				yes		yes	yes		yes
Seaside Hospital	Long Beach		80	98	178	7	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
California Lutheran Hospital	Los Angeles	yes	yes	yes	200	5				yes		yes	yes		yes
Hollywood Hospital	Los Angeles	76	30	31	137	4				50			yes		yes
Hospital of the Good Samaritan	Los Angeles	yes	yes	yes	140	9	Ap.	April	1 yr.	yes	yes	yes		$50	yes
Los Angeles General Hospital[1]	Los Angeles	60	200	21	1,282	60	Ex.	Nov.	1-2 yrs.	yes	yes	yes	yes	$70-$80	yes
Methodist Hospital[1]	Los Angeles	yes	yes	yes	115	2	Ap.	April	1 yr.	yes	yes	yes	yes	$60	yes
St. Vincent's Hospital	Los Angeles	yes	yes	yes	100	2				50		yes	yes		yes
White Memorial Hospital[1]	Los Angeles	57	30	33	120	12	Ap.	Jan.	1 yr	yes	yes	yes	yes	50 (a)	yes
Pabisch Hospital	Oakland	25	25	50	102	0	Ap.			250		yes	yes		yes
Providence Hospital	Oakland	yes	yes	yes	108			May	1 yr.	50	yes	yes		$60	yes
Samuel Merritt Hospital	Oakland	yes	yes	yes	118					yes		yes			yes
Mercy Hospital	San Diego	60	30	100	190										
San Diego County Hospital[1]	San Diego	65	80	110	255	5	Ap.	April	1 yr.	yes	yes	yes	yes	(f)	yes
Franklin Hospital	San Francisco	yes	yes	yes	170	3	Ap.	Indef.	1 yr.	yes	yes	yes	yes	$60	yes
French Hospital	San Francisco	yes	yes	yes	225	4				50		50	yes	yes	yes
Hahnemann Hospital[23]	San Francisco	yes	yes	yes	112	1	Ap.	April	1 yr.	30	yes	50	yes		yes
Hospital for Children[1]	San Francisco	50	30	106	186	12	Ap.	May	1 yr.	yes	yes	yes	yes	$10	yes
Lane Hospital and Stanford University Hospital[1]	San Francisco	138	124	53	315	17	Ap.	May	1 yr	yes	yes	yes	yes	$10	yes
Mary's Help Hospital	San Francisco	yes	yes	yes	150	2	Ap.	April	1 yr.	yes	yes	yes			yes
Mount Zion Hospital	San Francisco	52	52	52	176	6	Ap.	March	1 yr.	yes	yes	yes	yes	$25	yes
San Francisco Hospital[1]	San Francisco	yes	yes	yes	1,422	20	Ap.	May	1 yr.	yes	yes	yes	yes	$10	yes
Southern Pacific General Hospital[2]	San Francisco	125	125		250	6	Ap.	May	1 yr.	yes	yes	yes	yes	$20	yes
St. Francis' Hospital	San Francisco	yes	yes	yes	225	5				yes	yes	yes	yes		yes
St. Joseph's Hospital	San Francisco	yes	yes	yes	200	3	Ap.		1 yr.	yes		yes	yes		yes
St. Luke's Hospital[1 23]	San Francisco	yes	yes	yes	150	6	Ap.	March	1 yr.	yes	yes	yes	yes	$0	yes
St. Mary's Hospital	San Francisco	yes	yes	yes	190	3				50	yes	50	yes		yes
University of California Hospital[1]	San Francisco	50	79	121	250	16	Ap.	April	1 yr.	50	yes	yes	yes	$25	yes
Alameda County Hospital[1]	San Leandro	75	120	146	341	10	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Santa Barbara Cottage Hospital	Santa Barbara	50	50	25	125	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
COLORADO															
St. Francis Hospital	Colorado Springs	35	50	35	120	1	Ap.	?	1 yr.	yes	yes	yes	yes	$0	yes
Children's Hospital	Denver	50	50	25	125	0	Ap.	?	1 yr.		yes	yes	yes	$0	yes
Denver General Hospital[1]	Denver	100	150	100	350	9	Ap.		12 mos.	yes	yes	yes	yes	$20	yes
Mercy Hospital	Denver	yes	yes	yes	180	2	Ap.		1 yr.	yes	yes	yes	yes	$0	yes
St. Anthony's Hospital	Denver	yes	yes	yes	200	2	Ex.	April	1 yr.	50	yes	yes	yes	$25	yes
St. Joseph's Hospital	Denver	150	50	75	275	3	Ap.	April	1 yr.	yes	yes	yes	yes	$0	yes
St. Luke's Hospital	Denver	100	50	75	225	1	Ap.	May	1 yr.	50	yes	yes	yes	$0	yes
CONNECTICUT															
Bridgeport Hospital	Bridgeport	yes	yes	yes	300	5	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
St. Vincent's Hospital	Bridgeport	125	93	94	312	4	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Hartford Hospital	Hartford	242	126	150	518	11	Ap.	?	12 mos.	50	yes	yes	yes	$20	yes
Municipal Hospital	Hartford	yes	yes	yes	90	2			1 yr.	yes	yes	yes	yes	$600 (a)	yes
St. Francis' Hospital	Hartford	150	173	150	500	9	Ap.	May	1 yr.	50	yes	yes	yes	$0	yes
Middlesex Hospital[1]	Middletown	60	53	7	120	2	Ap.	May	1 yr.	50	yes	yes	yes	$25 (a)	yes
New Britain General Hospital	New Britain	50	50	40	140	4	Ap.	April	12 mos.	50	yes	yes	yes	$20	yes
Grace Hospital[1 23]	New Haven	75	50	175	300	6	Ap.	?	1 yr.	50	yes	yes	yes	$20	yes
Hospital of St. Raphael	New Haven	160	70	50	280	5	Ap.	April	1 yr.	50	yes	yes	yes	$0	yes
New Haven Hospital[1]	New Haven	yes	yes	yes	450	20	Ap.	April	1 yr.	50	yes	yes	yes	$0	yes
St. Mary's Hospital	Waterbury	150	51	51	252	3	Ap.	May	1 yr.	50	yes	yes	yes	$25	yes
Waterbury Hospital	Waterbury	97	60	28	185	3	Ap.	May	1 yr.	50	yes	yes	yes	$25	yes
DELAWARE															
Delaware Hospital[1]	Wilmington	50	25	50	175	2	Ap.	July	1 yr.	yes	yes	yes	yes	$20	yes
Homeopathic Hospital	Wilmington	25	25	28	80	2	Ap.	May	1 yr.	yes	yes	yes	yes	$20	yes
DISTRICT OF COLUMBIA															
Central Disp. and Emergency Hosp.[1]	Washington	100	50		150	10	Ap.	May	1 yr.	yes	yes	yes	yes	$30, $35	yes
Columbia Hospital for Women	Washington	62		62	124	4	Ap.	Indef.	1 yr.	yes	yes	50	yes	$0	yes
Eastern Disp. and Casualty Hosp.	Washington	yes	yes	yes	50	0	Ex.		1 yr.	yes	yes	yes	yes	$0	yes
Freedmen's Hospital[1]	Washington	100	84	28	278	16	Ex.	?	1 yr.	yes	yes	yes	yes	$0	yes
Gallinger Municipal Hospital[1]	Washington	40	110	230	380	4	Ap.	April	1 yr.	yes	yes	yes	yes	$0	yes
Garfield Memorial Hospital[23]	Washington	yes	yes	yes	276	6	Ex.	April	1 yr.	yes	yes	yes	yes	$30	yes
Georgetown University Hospital	Washington	yes	yes	yes	267	5	Ex.	April	1 yr.	yes	yes	yes	yes	$0	yes
George Washington Univ. Hosp.	Washington	60	60	50	170	3	Ap.	Indef.	1 yr.	yes	yes	yes	yes	$0	yes
Providence Hospital	Washington	114	101	110	325	7	Ap.	May	1 yr.	yes	yes	yes	yes	$30	yes
Sibley Memorial Hospital	Washington	65	50	60	175	3	Ap.		1 yr.	yes	yes	yes	yes	(f)	yes
St. Elizabeth's Hospital[23]	Washington	50	100		150	3	Ex.	April	14 mos.	yes	yes	yes	yes	$125	yes
Walter Reed General Hospital	Washington	647	654	50	1,351	10	Ap.	April	1 yr.	50	yes	yes	yes	(f)	yes
FLORIDA															
St. Luke's Hospital	Jacksonville	yes	yes	yes	125	2	Ap.	April	1 yr.	50	yes	yes	yes	$60	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

Name of Hospital	Location	Number of Beds: Surgical	Medical	Other	Total	Interns: Number in Hospital	By Appt. or Exam.	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo.	Training School for Nurses
GEORGIA															
Davis-Fischer Sanatorium	Atlanta	yes	yes	yes	210	2	Ap.	May	1 yr.	no	yes	yes	yes	$10	yes
Georgia Baptist Hospital	Atlanta	60	20	38	118	4	Ap.	May	1 yr.	no	yes	yes	no	$20	yes
Grady Memorial Hospital	Atlanta	143	127	130	400	12	Ap.	April	12 or 18	yes	yes	yes	yes	$15	yes
Piedmont Hospital	Atlanta	yes	yes	yes	120	4	Ex.	March	1 yr.	no	few	no	yes	2d yr.	yes
St. Joseph's Infirmary	Atlanta	yes	yes	yes	135	1	Ap.	March	1 yr.	no	yes	yes	no	$100	yes
University Hospital	Augusta	115	115	31	261	7	Ap.	April	1 yr.	yes	yes	yes	yes	yes	yes
Macon Hospital	Macon	55	55	30	140	6	Ap.	July	1 yr	yes	yes	yes	yes	$40	yes
IDAHO															
St. Alphonsus Hospital	Boise	...	...	...	125	...	...	...	...	...	...	...	...	...	yes
ILLINOIS															
Alexian Brothers' Hospital (male patients only)	Chicago	160	120	20	300	6	Ap.	...	1 yr.	yes	yes	yes	no	no	yes
Augustana Hospital	Chicago	165	70	11	246	10	Ap.	*	2½ yrs.	no	yes	yes	yes	no	yes
Chicago Memorial Hospital [1]	Chicago	61	30	59	150	4	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Cook County Hospital [1]	Chicago	550	800	1,450	2,800	65	Ex.	**	18 mos.	yes	yes	yes	yes	no	yes
Englewood Hospital	Chicago	75	50	25	150	3	Ap.	**	12 mos.	no	yes	yes	yes	no	yes
Frances E. Willard Hospital	Chicago	70	30	25	125	5	Ex.	June	1 yr.	yes	yes	...	no	no	yes
Grant Hospital	Chicago	yes	yes	yes	150	6	Ap.	May	1 yr.	yes	yes	yes	no	no	yes
Hospital of St. Anthony de Padua	Chicago	98	50	41	189	4	Ap.	****	18 mos.	no	yes	yes	yes	no	yes
Illinois Central Hospital	Chicago	50	50	100	200	6	Ap.	*	18 mos.	yes	yes	yes	no	$25	no
Lutheran Deaconess Home and Hos. [1]	Chicago	40	20	40	100	4	Ap.	‡‡‡	1 yr.	no	yes	yes	yes	no	yes
Lutheran Memorial Hospital	Chicago	114	45	38	197	4	Ap.	April	12 mos.	no	yes	yes	yes	no	yes
Mercy Hospital	Chicago	200	140	50	390	19	Ap.	¶	18 mos.	yes	yes	yes	yes	no	yes
Michael Reese Hospital [2]	Chicago	yes	yes	yes	453	27	Ind.	*	18-24 mo.	yes	yes	yes	yes	no	yes
Mt. Sinai Hospital [1]	Chicago	24	30	48	102	4	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Norwegian American Hospital	Chicago	78	32	40	150	4	Ex.	Indef.	1 yr.	no	yes	yes	no	no	yes
Presbyterian Hospital [8]	Chicago	200	218	7	425	25	Ap.	*	1-2 yrs.	yes	yes	yes	yes	no	yes
Provident Hospital (col.)	Chicago	yes	yes	yes	65	4	...	...	...	yes	...	...	...	...	yes
South Shore Hospital	Chicago	55	15	55	125	4	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
St. Anne's Hospital	Chicago	55	45	...	100	4	Ap.	Indef.	1 yr.	yes	yes	yes	yes	no	yes
St. Bernard's Hospital	Chicago	78	54	51	183	7	Ap.	*	1 yr.	no	yes	yes	yes	no	yes
St. Elizabeth's Hospital	Chicago	125	50	60	235	6	Ap.	†	1 yr.	yes	yes	yes	yes	no	yes
St. Joseph's Hospital	Chicago	100	41	39	180	8	Ex.	Indef.	1 yr.	yes	few	yes	yes	no	yes
St. Luke's Hospital	Chicago	yes	yes	yes	411	24	Ex.	April	2 yrs.	yes	yes	yes	yes	no	yes
St. Mary of Nazareth Hospital	Chicago	yes	yes	yes	215	8	Ap.	Oct.	1 yr.	yes	yes	yes	no	no	yes
Swedish Covenant Hospital	Chicago	48	42	35	125	4	Ap.	April	1 yr.	yes	yes	yes	yes	yes	yes
University Hospital [1]	Chicago	44	20	46	110	4	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
Washington Boulevard Hospital	Chicago	30	40	20	90	6	Ap.	****	18 mos.	yes	yes	yes	yes	no	yes
Washington Park Hospital	Chicago	yes	yes	yes	150	6	Ap.	Indef	16 mos.	no	yes	yes	yes	no	yes
Wesley Memorial Hospital [10]	Chicago	125	75	75	275	17	Ap.	****	2 yrs.	no	yes	yes	yes	no	yes
West Side Hospital	Chicago	yes	yes	yes	154	7	Ap.	****	18 mos.	yes	yes	yes	no	no	yes
Women and Children's Hospital	Chicago	27	25	43	95	5	Ap.	Indef.	1 yr.	yes	yes	yes	no	no	yes
Evanston Hospital [1]	Evanston	72	28	160	260	8	Ap.	¶¶	1 yr.	yes	yes	yes	yes	no	yes
St. Francis Hospital [1]	Evanston	60	22	28	160	4	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Oak Park Hospital	Oak Park	35	30	110	175	1	Ap.	April	1 yr.	no	yes	yes	yes	yes	yes
West Suburban Hospital	Oak Park	75	30	165	280	8	Ap.	‡‡‡	1 yr.	no	yes	yes	yes	no	yes
St. Francis Hospital	Peoria	120	80	120	320	6	Ap.	April	12 mos.	yes	yes	yes	yes	$50	yes
INDIANA															
St. Joseph's Hospital	Ft. Wayne	110	60	30	200	5	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Gary Hospital	Gary	yes	yes	yes	160	1	Ap.	Indef.	1 yr.	yes	yes	no	yes	yes	no
St. Margaret's Hospital	Hammond	90	50	10	150	4	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
Indianapolis City Hospital	Indianapolis	200	200	160	560	10	Ex.	¶	1 yr.	no	yes	yes	yes	$12.50	yes
Methodist Episcopal Hospital [1]	Indianapolis	yes	yes	yes	375	13	Ap.	April	1 yr.	yes	yes	yes	yes	(k)	yes
Robert W. Long Hospital [1]	Indianapolis	46	46	28	120	5	Ap.	April	1 yr.	yes	yes	yes	yes	$12.50	yes
St. Vincent's Hospital	Indianapolis	138	80	32	250	5	Ap.	March	1 yr.	no	yes	no	yes	$50	yes
St. Elizabeth's Hospital	Lafayette	140	90	20	250	3	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
Epworth Hospital and Training Sch.	South Bend	...	...	...	150	3	...	...	1 yr.	no	...	...	yes	...	yes
St. Anthony's Hospital	Terre Haute	125	50	40	215	2	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
IOWA															
Jennie Edmundson Memorial Hosp. [1]	Council Bluffs	40	40	21	110	2	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Mercy Hospital	Davenport	yes	yes	yes	130	2	Ap.	May	1 yr.	no	yes	yes	yes	$20	yes
Iowa Lutheran Hospital	Des Moines	65	60	25	150	3	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Iowa Methodist Hospital [1]	Des Moines	100	75	125	300	6	Ap.	‡‡‡	1 yr.	no	yes	yes	yes	(l)	yes
Mercy Hospital	Des Moines	yes	yes	yes	150	2	Ap.	May	1 yr.	yes	yes	no	no	no	yes
University Hospital [1]	Iowa City	202	216	297	715	28	Ap.	May	1 yr.	yes	yes	yes	yes	$125 (a)	yes
St. Joseph's Mercy Hospital	Sioux City	yes	yes	yes	200	1	Ap.	March	1 yr.	yes	yes	yes	no	$25	yes
KANSAS															
St. Margaret's Hospital	Kansas City	200	100	100	400	7	Ap.	April	1 yr.	yes	yes	yes	yes	$50	no
Bell Memorial Hospital [1]	Rosedale	25	35	10	70	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. Francis Hospital	Wichita	135	100	48	283	3	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
Wichita Hospital	Wichita	114	50	5	169	2	Ap.	April	1 yr.	yes	yes	yes	no	$62.50	yes
KENTUCKY															
St. Elizabeth's Hospital	Covington	66	131	153	350	4	Ap.	May	1 yr.	few	yes	yes	no	$25	yes
Good Samaritan Hospital	Lexington	yes	yes	yes	125	1	Ap.	April	1 yr.	no	yes	no	no	$50	yes
John N. Norton Memorial Infirmary	Louisville	50	35	25	110	0	Ap.	Indef.	1 yr.	no	yes	yes	no	$50	yes
Louisville City Hospital	Louisville	120	120	160	400	(m)	Ap.	May	1 yr.	yes	yes	yes	yes	$10	yes
St. Anthony's Hospital	Louisville	yes	yes	yes	150	0	Ap.	March	1 yr.	yes	yes	yes	yes	no	no
LOUISIANA															
Charity Hospital of Louisiana	New Orleans	365	340	565	1,270	45	Ap.	March	1 yr.	yes	yes	yes	no	no	yes
Hotel Dieu	New Orleans	73	75	37	185	6	...	...	...	no	yes	yes	...	$50	yes
Illinois Central Railroad Hospital	New Orleans	yes	yes	yes	65	2	Ap.	May	1 yr.	yes	yes	yes	no	$50	no
Touro Infirmary [1]	New Orleans	yes	yes	yes	400	18	Ap.	April	1 yr.	yes	yes	yes	yes	$20	yes
Shreveport Charity Hospital	Shreveport	100	75	21	208	5	Ap.	May	1 yr.	yes	yes	yes	yes	$5 (n)	yes
T. E. Schumpert Memorial Sanit. [1]	Shreveport	yes	yes	yes	200	2	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
MAINE															
Eastern Maine General Hospital	Bangor	yes	yes	yes	120	2	Ap	June	1 yr.	no	yes	yes	yes	(dd)	yes
Central Maine General Hospital	Lewiston	yes	yes	yes	120	2	Ap.	May	1 yr.	no	yes	yes	yes	$50	yes
Maine General Hospital	Portland	yes	yes	yes	160	4	Ap.	June	1 yr.	yes	yes	yes	yes	no	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

Name of Hospital	Location	Number of Beds: Surgical	Medical	Other	Total	Interns: Number in Hospital	By Appt. or Exam.	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo.	Training School for Nurses
MARYLAND															
Church Home and Infirmary	Baltimore	yes	yes	yes	227	6	Ap.	June	1 yr.	no	yes	yes	yes	no	yes
City Hospitals, Bay View	Baltimore	yes	yes	yes	1,160	5	Ex.	May	1 yr.	yes	yes	yes	no	yes	no
Franklin Square Hospital	Baltimore	yes	yes	yes	110	2	Ap.	April	1 yr.	yes	yes	yes	yes	yes	yes
Hebrew Hospital[1]	Baltimore	64	35	35	135	14	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
Johns Hopkins Hospital[1]	Baltimore	yes	yes	yes	794	40	Ap.	July	1 yr.	yes	yes	yes	yes	no	yes
Maryland General Hospital	Baltimore	100	80	80	260	8	Ap.	April	1 yr	yes	yes	yes	yes	no	yes
Mercy Hospital	Baltimore	155	85	10	250	14	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
South Baltimore General Hospital[1]	Baltimore	25	20	30	75	5	Ap.	May	1 yr.	yes	yes	yes	no	$100 (a)	yes
St. Agnes' Hospital	Baltimore	140	80	38	258	7	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
St. Joseph's Hospital	Baltimore	190	71	14	275	5	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Union Memorial Hospital	Baltimore	yes	yes	yes	184	8	Ex.	May	1 yr.	yes	yes	yes	no	no	yes
University of Maryland Hospital[1]	Baltimore	149	65	36	250	12	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
MASSACHUSETTS															
Boston City Hospital	Boston	381	339	467	1,187	63	Ex.	Indef.	Indef.	yes	yes	yes	yes	no	yes
Carney Hospital	Boston	72	91	47	210	13	Ex.	‡‡‡	16 mos.	yes	yes	yes	yes	no	yes
Massachusetts General Hospital[20]	Boston	206	163	8	377	20	Ex.	****	6-21 mo.	yes	yes	yes	yes	no	yes
Massachusetts Homeopathic Hosp.[1]	Boston	133	91	335	559	22	Ap.	April	1 yr.	yes	no	yes	yes	no	yes
New England Hospital for Women and Children[4]	Boston	yes	yes	yes	160	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Peter Bent Brigham Hospital	Boston	yes	yes	......	223	19	Ex.	‡‡‡	16 mos.	yes	yes	yes	yes	no	yes
St. Elizabeth's Hospital	Boston	75	75	50	200	6	Ex.	****	18 mos.	yes	yes	yes	yes	no	yes
Brockton Hospital[1]	Brockton	54	27	46	127	3	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Cambridge Hospital	Cambridge	61	30	60	150	3	Ap.	¶¶	1 yr.	yes	yes	yes	no	no	yes
Chelsea Memorial Hospital	Chelsea	46	22	30	98	1	Ap.	March	1 yr.	yes	yes	no	yes	$25	yes
Fall River General Hospital	Fall River	yes	yes	yes	116	2	Ap.	April	1 yr.	yes	yes	yes	yes	$40	yes
Union Hospital[22]	Fall River	yes	yes	yes	150	2	Ap.	......	1 yr.	yes	yes	yes	yes	yes	yes
Burbank Hospital[11]	Fitchburg	60	50	15	125	1	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Lawrence General Hospital	Lawrence	30	19	101	150	2	Ap.	¶¶	12-18 mo.	yes	yes	yes	yes	$10	yes
Lowell Corporation Hospital	Lowell	yes	yes	yes	100	1	Ap.	March	1 yr.	yes	yes	yes	yes	$25	yes
Lowell General Hospital[1]	Lowell	yes	yes	yes	100	1	Ex.	April	1 yr.	yes	yes	yes	yes	$100 (a)	yes
St. John's Hospital	Lowell	51	39	54	144	3	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Lynn Hospital	Lynn	yes	yes	yes	128	3	Ex.	April	1 yr.	yes	yes	yes	yes	$10	yes
St. Luke's Hospital	New Bedford	52	18	127	197	3	Ap.	April	1 yr.	yes	yes	no	no	no	yes
Newton Hospital	Newton	42	37	113	192	2	Ex.	May	1 yr.	yes	yes	yes	yes	no	yes
House of Mercy Hospital	Pittsfield	55	40	80	175	1	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Salem Hospital	Salem	57	35	19	111	3	Ap.	April	††††	yes	yes	yes	yes	$25	yes
Mercy Hospital	Springfield	125	35	40	200	3	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Springfield Hospital	Springfield	yes	yes	yes	200	3	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Waltham Hospital[1]	Waltham	yes	yes	yes	125	2	Ap.	Indef.	1 yr.	yes	yes	yes	yes	no	yes
Memorial Hospital[4]	Worcester	yes	yes	yes	200	3	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
St. Vincent's Hospital	Worcester	100	50	50	200	2	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Worcester City Hospital	Worcester	175	137	88	400	14	Ex.	‡‡‡‡	21 mos.	yes	yes	yes	yes	no	yes
MICHIGAN															
University Hospital	Ann Arbor	120	80	300	500	30	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Battle Creek Sanitarium[1]	Battle Creek	146	125	650	1,000	1	Ind.	April	2 yrs.	yes	yes	yes	yes	(d)	yes
City of Detroit Receiving Hospital	Detroit	200	100	65	365	20	Ap.	April	1 yr.	yes	yes	yes	yes	$25	no
Grace Hospital[1]	Detroit	176	50	134	360	22	Ap.	*	1 yr.	yes	yes	yes	yes	(h)	yes
Harper Hospital	Detroit	300	80	70	450	40	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Henry Ford Hospital	Detroit	yes	yes	yes	600	27	Ex.	April	1 yr.	yes	yes	yes	yes	$150	no
Providence Hospital	Detroit	yes	yes	yes	300	12	Ap.	May	1 yr.	no	yes	yes	small	no	yes
St. Mary's Hospital	Detroit	185	75	90	350	9	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Blodgett Memorial Hospital	Grand Rapids	yes	yes	yes	160	5	Ap.	¶¶	1 yr.	yes	yes	yes	yes	no	yes
Butterworth Hospital	Grand Rapids	80	34	41	155	4	Ap.	May	1 yr.	yes	yes	yes	no	$25	yes
St. Mary's Hospital	Grand Rapids	yes	yes	yes	100	3	Ap.	April	1 yr.	no	yes	yes	yes	$75	yes
Highland Park General Hospital	Highland Park	yes	yes	yes	135	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
W. A. Foote Memorial Hospital	Jackson	40	45	40	125	2	Ap.	April	1 yr.	yes	yes	yes	yes	$37.50	yes
Hackley Hospital[1]	Muskegon	40	40	35	115	1	Ap.	April	1 yr.	no	yes	yes	yes	$75	yes
MINNESOTA															
St. Mary's Hospital[1]	Duluth	75	75	110	260	4	Ap.	Nov.	1 yr.	no	yes	yes	yes	$25	yes
Abbott Hospital	Minneapolis	40	28	40	108	2	Ap.	March	1 yr.	no	yes	yes	yes	no	yes
Asbury Hospital	Minneapolis	54	45	67	166	2	Ap.	June	1 yr.	no	yes	yes	yes	no	yes
Minneapolis General Hospital	Minneapolis	120	125	458	703	16	Ex.	April	†††	yes	yes	yes	yes	no	yes
Northwestern Hospital[1]	Minneapolis	40	56	30	126	3	Ap.	¶	1 yr.	yes	yes	no	yes	no	yes
St. Barnabas Hospital	Minneapolis	100	32	43	175	3	Ap.	¶	1 yr.	no	yes	yes	yes	$25	yes
St. Mary's Hospital	Minneapolis	132	71	22	225	5	Ap.	*	1 yr.	no	yes	yes	no	$25	yes
Swedish Hospital[1]	Minneapolis	115	100	30	245	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
University Hospital[1]	Minneapolis	78	66	53	197	10	Ap.	¶	1 yr.	yes	yes	yes	yes	no	yes
Bethesda Hospital	St. Paul	72	50	18	130	1	Ap.	April	1 yr.	no	yes	yes	no	$50	yes
Charles T. Miller Hospital	St. Paul	75	75	66	216	6	Ap.	April	1 yr.	no	yes	yes	no	no	yes
Ancker Hospital	St. Paul	yes	yes	yes	850	24	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Mounds Park Sanitarium	St. Paul	45	25	55	125	1	Ap.	April	1 yr.	no	yes	yes	yes	yes	yes
Northern Pacific General Hospital	St. Paul	70	60	12	142	3	Ap.	Nov.	1 yr.	yes	yes	yes	yes	$25	yes
St. Joseph's Hospital	St. Paul	yes	yes	yes	250	1	Ap.	April	1 yr.	no	yes	no	no	$25	yes
St. Luke's Hospital	St. Paul	yes	yes	yes	160	2	Ap.	April	1 yr.	yes	yes	yes	no	$50	yes
MISSISSIPPI															
Mississippi State Charity Hospital	Jackson	100	......	......	100	3	Ap.	April	1 yr.	yes	yes	yes	small	no	yes
Natchez Hospital[1]	Natchez	80	100	45	225	6	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Mississippi State Charity Hospital	Vicksburg	100	100	......	200	6	Ap.	March	1 yr.	yes	yes	yes	yes	no	yes
MISSOURI															
Kansas City General Hospital (white and colored)	Kansas City	yes	yes	yes	400	20	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Research Hospital	Kansas City	yes	yes	yes	175	3	Ap.	April	1 yr.	no	yes	yes	no	$50	yes
St. Joseph's Hospital	Kansas City	yes	yes	yes	225	2	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
St. Luke's Hospital	Kansas City	62	35	67	164	4	Ap.	March	1 yr.	yes	yes	yes	yes	$75	yes
St. Mary's Hospital	Kansas City	100	50	25	175	4	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Alexian Brothers' Hospital	St. Louis	70	70	110	250	5	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Barnes Hospital	St. Louis	93	77	100	270	15	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Jewish Hospital	St. Louis	yes	yes	yes	110	5	Ex.	April	1-2 yrs.	yes	yes	yes	yes	$20 & $30	yes
Missouri Baptist Sanitarium	St. Louis	145	120	67	332	8	Ap.	April	1 yr.	yes	yes	yes	no	$25	yes
St. John's Hospital	St. Louis	100	80	70	250	6	Ap.	April	1-2 yrs.	yes	yes	yes	yes	yes	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—Continued

Name of Hospital	Location	Number of Beds: Surgical	Medical	Other	Total	Interns: Number in Hospital	By Appt. or Exam.	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo.	Training School for Nurses
St. Louis City Hosp. No. 1 (white)	St. Louis	yes	yes	yes	650	52	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. Louis City Hosp. No. 2 (col.)	St. Louis	76	94	55	225	10	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
St. Luke's Hospital [1]	St. Louis	yes	yes	yes	189	7	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
St. Mary's Infirmary	St. Louis	100	75	......	175	5	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
MONTANA															
Murray Hospital	Butte	60	40	7	107	3	Ap.	April	1 yr.	yes	yes	no	yes	$70	yes
St. James Hospital [1]	Butte	80	55	15	150	2	Ap.	April	1 yr.	yes	yes	yes	yes	$60	yes
NEBRASKA															
St. Elizabeth's Hospital	Lincoln	yes	yes	yes	200	1	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Bishop Clarkson Memorial Hospital	Omaha	yes	yes	yes	85	2	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Creighton Memorial St. Joseph's Hospital	Omaha	100	80	195	375	10	Ex.	April	1 yr.	yes	yes	yes	yes	$22.50	yes
Nebraska Methodist Episcopal Hospital	Omaha	94	94	24	212	7	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
University Hospital [1]	Omaha	40	40	60	140	5	Ap.	§	12-18 mo.	yes	yes	yes	yes	no	yes
NEW JERSEY															
Atlantic City Hospital	Atlantic City	55	55	74	184	6	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Bayonne Hospital and Dispensary	Bayonne	yes	yes	yes	112	3	Ap.	April	1 yr.	yes	yes	no	no	$25	yes
Cooper Hospital	Camden	yes	yes	yes	210	6	Ap.	April	1 yr.	yes	yes	yes	yes	$10 (n)	yes
West Jersey Homeopathic Hospital [1]	Camden	65	30	55	150	3	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Alexian Brothers' Hospital	Elizabeth	yes	yes	......	110	0	Ap.	Nov.	1 yr.	yes	yes	yes	yes	$25	yes
Elizabeth General Hospital	Elizabeth	yes	yes	yes	200	4	Ap.	April	1 yr.	yes	yes	yes	small	(o)	yes
St. Elizabeth's Hospital	Elizabeth	60	40	80	180	4	Ap.	April	1 yr.	yes	yes	yes	no	$25	yes
Englewood Hospital Association	Englewood	yes	yes	yes	100	3	Ex.	Dec.	1 yr.	yes	yes	yes	no	$140	yes
Hackensack Hospital	Hackensack	yes	yes	yes	200	3	Ex.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. Mary's Hospital	Hoboken	yes	yes	yes	400	6	Ind.	March	1 yr.	yes	yes	no	no	$25	yes
Christ Hospital	Jersey City	78	24	8	110	5	Ap.	‡‡‡	16 mos.	yes	yes	yes	no	yes	yes
Jersey City Hospital	Jersey City	215	196	189	600	20	Ex.	Indef.	18 mos.	yes	yes	yes	yes	$25	yes
St. Francis' Hospital	Jersey City	116	107	78	301	6	Ap.	§	1 yr.	yes	yes	yes	yes	$25	no
Monmouth Memorial Hospital	Long Branch	yes	yes	yes	186	2	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Mountainside Hospital	Montclair	48	40	79	167	4	Ind.	April	1 yr.	yes	yes	yes	yes	$25	yes
Hospital of St. Barnabas	Newark	yes	yes	yes	126	2	Ex.	March	1 yr.	yes	yes	yes	no	$25	yes
Newark Beth Israel Hospital [1]	Newark	yes	yes	yes	120	6	Ex.	March	1 yr.	yes	yes	yes	yes	$25	yes
Newark City Hospital [1]	Newark	200	250	50	500	21	Ex.	****	21 mos.	yes	yes	yes	yes	no	yes
Newark Memorial Hospital [1]	Newark	55	15	80	150	2	Ap.	April	1 yr.	yes	yes	no	no	$25	yes
St. James' Hospital	Newark	yes	yes	yes	100	2	Ap.	Oct.	1 yr.	yes	yes	yes	yes	$50	yes
St. Michael's Hospital	Newark	107	229	......	336	7	Ex.	Feb.	1 yr.	yes	yes	yes	no	no	no
Orange Memorial Hospital	Orange	yes	yes	yes	250	4	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
St. Mary's Hospital	Orange	75	35	35	145	3	Ap.	March	11 mos.	yes	yes	yes	no	no	yes
Passaic General Hospital [1]	Passaic	58	30	12	100	2	Ex.	April	1 yr.	yes	yes	yes	no	$50	yes
St. Mary's Hospital	Passaic	yes	yes	yes	165	2	Ex.	Indef.	Indef.	yes	yes	yes	yes	no	yes
Nathan and Miriam Barnert Memorial Hospital [1]	Paterson	60	35	30	85	3	Ap.	March	12-18 mo.	yes	yes	yes	no	(q)	yes
Paterson General Hospital	Paterson	48	28	91	167	4	Ex.	April	1 yr.	yes	yes	yes	yes	$50	yes
St. Joseph's Hospital	Paterson	yes	yes	yes	350	1	Ex.	May	1 yr.	yes	yes	yes	yes	no	yes
Muhlenberg Hospital	Plainfield	62	45	28	135	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Mercer Hospital	Trenton	71	43	61	175	3	Ap.	May	1 yr.	yes	yes	yes	yes	$400 (a)	yes
St. Francis' Hospital	Trenton	175	55	20	250	10	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
William McKinley Memorial Hosp.	Trenton	yes	yes	yes	85	2	Ap.	April	1 yr.	yes	yes	yes	no	$25	yes
North Hudson Hospital	Weehawken	yes	yes	yes	80	4	Ap.	¶	1 yr.	yes	yes	yes	no	$25	yes
NEW YORK															
Albany Hospital	Albany	yes	yes	yes	420	6	Ap.	May	1 yr.	yes	yes	yes	no	no	yes
St. Peter's Hospital	Albany	yes	yes	yes	138	2	Ex.	May	1 yr.	yes	yes	yes	no	$400 (a)	yes
Auburn City Hospital	Auburn	yes	yes	yes	100	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Binghamton City Hospital	Binghamton	yes	yes	yes	165	2	Ap.	April	1 yr.	no	yes	yes	yes	no	yes
Brooklyn Hospital	Brooklyn	94	52	148	294	14	Ex.	April	2 yrs.	yes	yes	yes	yes	no	yes
Brownsville and East New York Hospital [1]	Brooklyn	yes	yes	yes	140	12	Ind.	March	18 mos.	yes	yes	yes	yes	no	no
Greenpoint Hospital [1]	Brooklyn	75	75	114	264	12	Ap.	April	2 yrs.	yes	yes	yes	yes	no	yes
Hospital of the Holy Family	Brooklyn	65	25	20	110	6	Ex.	**	1 yr.	yes	yes	yes	no	no	yes
Jewish Hospital	Brooklyn	yes	yes	yes	333	19	Ex.	†††	2 yrs.	yes	yes	yes	yes	no	yes
Kings County Hospital	Brooklyn	560	304	945	1,809	28	Ap.	†	26 mos.	yes	yes	yes	yes	no	yes
Long Island College Hospital	Brooklyn	yes	yes	yes	456	12	Ap.	April	1 yr.	yes	yes	yes	yes	$150 (a)	yes
Methodist Episcopal Hospital	Brooklyn	yes	yes	yes	295	13	Ap.	April	2 yrs.	yes	yes	yes	yes	no	yes
Norwegian Lutheran Deaconess Home and Hospital	Brooklyn	50	38	112	200	6	Ap.	§	1 yr.	yes	yes	yes	yes	(t)	yes
St. Catherine's Hospital [1]	Brooklyn	167	88	41	296	12	Ap.	April	2 yrs.	yes	yes	yes	yes	no	yes
St. John's Hospital	Brooklyn	yes	yes	yes	187	4	Ap.	Indef.	16 mos.	no	yes	yes	yes	$20	yes
St. Mary's Hospital [1]	Brooklyn	150	100	50	300	15	Ind.	****	18 mos.	yes	yes	yes	no	no	yes
St. Peter's Hospital	Brooklyn	125	100	25	250	5	Ap.	§	1 yr.	no	yes	yes	yes	no	no
Swedish Hospital	Brooklyn	45	15	30	90	3	Ap.	April	1 yr.	yes	yes	yes	no	$25	yes
Wyckoff Heights Hospital	Brooklyn	145	20	10	175	8	Ap.	Indef.	1 yr.	yes	yes	yes	yes	no	yes
Buffalo City Hospital [1, 18]	Buffalo	94	104	665	863	36	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Buffalo Columbus Hospital	Buffalo	40	20	15	75	2	Ap.	March	1 yr.	no	yes	no	yes	$25	yes
Buffalo General Hospital	Buffalo	yes	yes	yes	400	15	both	April	1 yr.	no	yes	yes	yes	no	yes
Buffalo Hospital of the Sisters of Charity [18]	Buffalo	107	107	......	214	8	Ind.	March	1 yr.	no	yes	yes	yes	$25	yes
Deaconess Hospital	Buffalo	18	30	159	207	4	Ap.	April	1 yr.	no	yes	yes	yes	$30	yes
Emergency Hospital of the Sisters of Charity [20]	Buffalo	60	25	......	85	4	Ind.	April	1 yr.	yes	yes	yes	no	$25	yes
Erie County Hospital [1]	Buffalo	80	140	80	300	5	Ap.	April	1 yr.	no	yes	yes	no	$50	yes
Millard Fillmore Hospital	Buffalo	yes	yes	yes	160	2	Ap.	April	1 yr.	no	yes	yes	no	$25	yes
Clifton Springs Sanatorium	Clifton Springs	40	252	8	300	2	Ap.	§	1 yr	yes	no	yes	yes	$25	yes
Arnot-Ogden Memorial Hospital	Elmira	37	20	43	100	1	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Flushing Hospital and Dispensary [1]	Flushing	yes	yes	yes	150	2	Ap.	April	18 mos.	yes	yes	yes	yes	$50	yes
St. John's Long Island City Hosp.	Long Island City	100	105	1	207	8	Ap.	Indef.	18 mos.	yes	yes	yes	no	no	yes
Nassau Hospital	Mineola	yes	yes	yes	85	2	Ap.	Indef.	1 yr.	no	yes	yes	no	yes	yes
Mount Vernon Hospital	Mount Vernon	30	28	45	103	2	Ap.	¶	18 mos.	yes	yes	yes	yes	yes	yes
New Rochelle Hospital [1]	New Rochelle	yes	yes	yes	160	4	Ap.	¶	18 mos.	yes	yes	yes	yes	yes	yes
Bellevue Hospital [1]	New York	412	461	927	1,800	120	Ap.	¶	12-18 mo.	yes	yes	yes	yes	no	yes
Beth Israel Hospital	New York	yes	yes	yes	145	16	Ex.	¶	2 yrs.	yes	yes	yes	yes	no	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

Name of Hospital	Location	Number of Beds: Surgical	Medical	Other	Total	Interns: Number in Hospital	By Appt. or Exam	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo	Training School for Nurses
City Hospital	New York	204	218	688	1,080	30	Ex.	¶	2 yrs.	yes	yes	yes	yes	no	yes
Fifth Avenue Hospital	New York	yes	yes	yes	225	14	Ap.	*	18 mos.	no	yes	.....	yes	no	yes
Fordham Hospital [1]	New York	178	86	112	376	13	Ex.	‡‡‡	16 mos.	yes	yes	yes	yes	no	yes
French Hospital	New York	yes	yes	yes	120	6	Ex.	*	1-2 yrs.	yes	yes	yes	yes	no	yes
Gouverneur Hospital	New York	80	80	55	215	15	Ap.	Feb.	1-2 yrs.	yes	yes	yes	yes	no	yes
Harlem Hospital	New York	92	88	222	400	28	Ap.	¶	2 yrs.	yes	yes	yes	yes	no	yes
Italian Benevolent Inst. and Hosp.	New York	yes	yes	yes	90	6	Ap.	****	1 yr.	yes	yes	yes	no	no	yes
Knickerbocker Hospital	New York	yes	yes	yes	55	5	Ap.	‡‡‡	18 mos.	yes	yes	yes	yes	no	yes
Lebanon Hospital	New York	51	47	88	186	11	Ex.	‡‡‡	20 mos.	yes	yes	yes	yes	no	yes
Lenox Hill Hospital	New York	yes	yes	yes	314	10	Ind.	*	24 mos.	yes	yes	yes	yes	no	yes
Lincoln Hospital and Home	New York	92	82	151	325	15	Ex.	****	21-24 mo.	yes	yes	yes	no	yes	yes
Metropolitan Hospital [1]	New York	208	183	1,274	1,665	25	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Mt. Sinai Hospital	New York	yes	yes	yes	650	30	Ex.	‡‡‡	24 mos.	yes	yes	yes	yes	no	yes
New York Homeopathic Medical College and Flower Hospital [1]	New York	80	66	77	223	8	Ex.	March	1 yr.	yes	yes	yes	yes	$25	yes
New York Hospital	New York	108	97	98	303	16	Ex.	¶	2 yrs.	yes	yes	yes	yes	no	yes
New York Infirmary for Women and Children [1]	New York	20	10	100	130	6	Ap.	***	1 yr.	yes	yes	yes	yes	$5	yes
New York Post-Graduate Medical School and Hospital	New York	yes	yes	yes	410	20	Ap.	****	2 yrs.	yes	yes	yes	yes	no	yes
Presbyterian Hospital [1]	New York	yes	yes	yes	256	20	Ap.	‡‡‡	20 mos.	yes	yes	yes	yes	no	yes
Roosevelt Hospital	New York	yes	yes	yes	375	17	Ex.	¶	2 yrs.	yes	yes	yes	yes	no	yes
St. Francis' Hospital	New York	220	120	163	503	8	Ap.	¶	2 yrs.	no	yes	yes	no	no	no
St. Luke's Hospital	New York	168	147	124	419	16	Ind.	¶	1½-2 yrs.	yes	yes	yes	yes	no	yes
St. Mark's Hospital [1]	New York	107	21	42	170	7	Ex.	‡‡‡	2 yrs.	yes	yes	yes	yes	yes	yes
St. Vincent's Hospital	New York	231	124	.....	355	18	Ex.	¶	1½-2 yrs.	yes	yes	yes	yes	no	yes
U. S. Marine Hosp. No. 43 (Ellis Isl.)	New York	yes	yes	yes	692	4	.....	.....	.....	no	yes	yes	yes	.....	no
United Hospital	Port Chester	yes	yes	yes	100	2	Ap.	March	1 yr.	no	yes	yes	no	(ee)	yes
Vassar Bros. Hospital	Poughkeepsie	yes	yes	yes	150	3	Ap.	¶	24 mos.	yes	yes	yes	yes	(r)	yes
Highland Hospital [1]	Rochester	yes	yes	yes	137	3	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Rochester General Hospital	Rochester	yes	yes	yes	325	8	Ap.	****	18 mos.	yes	yes	yes	yes	$25	yes
Homeopathic Hospital [1]	Rochester	yes	yes	yes	136	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Ellis Hospital	Schenectady	116	50	34	200	3	Ap.	March	1 yr.	no	yes	yes	yes	$50	yes
Staten Island Hospital	Staten Island	60	60	39	160	5	Ap.	****	15 mos.	yes	yes	yes	yes	no	yes
Hospital of the Good Shepherd	Syracuse	yes	yes	yes	200	6	Ex	#	1 yr.	no	yes	no	yes	no	yes
St. Joseph's Hospital [1]	Syracuse	yes	yes	yes	112	3	Ap.	March	1 yr.	yes	yes	yes	yes	no	yes
Syracuse Memorial Hospital [1]	Syracuse	yes	yes	yes	150	2	Ap.	May	1 yr	no	yes	yes	no	no	yes
Samaritan Hospital [1]	Troy	86	60	29	175	3	Ap.	#	1 yr.	yes	yes	yes	yes	$30	yes
Grasslands Hospital	Valhalla	75	163	162	400	8	Ap.	¶	1 yr.	yes	yes	yes	yes	yes	no
St. John's Riverside Hospital	Yonkers	yes	yes	.....	110	4	Ap.	¶	18 mos.	yes	yes	yes	yes	$25	yes
St. Joseph's Hospital	Yonkers	41	41	.....	82	3	Ap.	Nov.	18 mos.	yes	yes	yes	no	no	yes
NORTH CAROLINA															
Rex Hospital	Raleigh	42	25	58	125	2	Ap.	July	1 yr.	yes	yes	no	yes	yes	yes
James Walker Memorial Hospital [1]	Wilmington	60	45	45	150	2	Ap.	*	1 yr	no	yes	yes	yes	$20	yes
NORTH DAKOTA															
Bismarck Evangelical Hospital [1]	Bismarck	yes	yes	yes	160	2	Ap.	Indef.	1 yr.	no	yes	yes	no	yes	yes
St. John's Hospital [1]	Fargo	60	35	30	125	0	Ap.	March	1 yr.	no	yes	yes	no	$25	yes
OHIO															
Christ Hospital	Cincinnati	90	48	37	175	5	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Cincinnati General Hospital [1]	Cincinnati	150	100	435	685	23	Ex.	¶	18 mos.	yes	yes	yes	yes	no	yes
Good Samaritan Hospital	Cincinnati	130	20	82	230	6	Ap.	April	1 yr.	no	yes	no	yes	$25	yes
Jewish Hospital	Cincinnati	yes	yes	yes	200	5	Ap.	April	1 yr.	no	few	yes	yes	$25	yes
St. Mary's Hospital [24]	Cincinnati	yes	yes	yes	102	4	.....	April	1 yr.	yes	.....	yes	no	$50	.....
Cleveland City Hospital [1]	Cleveland	yes	yes	yes	1,050	25	Ap.	April	1 yr.	no	yes	yes	no	no	yes
Lakeside Hospital	Cleveland	yes	yes	.....	295	12	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
Mt. Sinai Hospital	Cleveland	yes	yes	yes	200	10	Ap.	April	1 yr.	yes	yes	yes	yes	$10 (s)	yes
St. Alexis Hospital [17]	Cleveland	yes	yes	yes	220	8	Ap.	April	1 yr	yes	.....	yes	.....	$25	yes
St. John's Hospital	Cleveland	36	87	34	157	6	Ex.	April	1 yr.	no	yes	yes	yes	$25	yes
St. Luke's Hospital	Cleveland	95	50	15	160	7	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. Vincent's Charity Hospital	Cleveland	190	85	15	290	10	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
Grant Hospital	Columbus	yes	yes	yes	308	7	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Mt. Carmel Hospital	Columbus	128	65	22	215	6	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
St. Francis' Hospital [27]	Columbus	yes	yes	yes	100	1	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
White Cross Hospital Association	Columbus	50	35	25	110	3	Ap.	April	1 yr.	no	yes	yes	no	$25	yes
Miami Valley Hospital [1]	Dayton	113	80	92	285	6	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
City Hospital	Springfield	48	35	37	120	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
St. Vincent's Hospital	Toledo	126	70	49	245	8	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Toledo Hospital	Toledo	yes	yes	yes	135	5	Ap.	.....	2 yr.	yes	yes	yes	yes	.....	yes
St. Elizabeth's Hospital [1]	Youngstown	95	80	25	200	5	Ap.	April	1 yr	yes	yes	yes	yes	$20	yes
Youngstown Hospital [1]	Youngstown	92	45	113	250	6	Ap.	¶	.....	yes	yes	yes	yes	$25	yes
OKLAHOMA															
St. Anthony's Hospital [1]	Oklahoma City	74	74	27	175	1	Ap.	April	1 yr.	yes	yes	yes	yes	$25 (t)	yes
State University Hospital	Oklahoma City	125	102	59	286	8	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
OREGON															
Emanuel Hospital	Portland	yes	yes	yes	160	2	Ap.	March	12-18 mo.	yes	yes	yes	yes	$10	yes
Good Samaritan Hospital	Portland	yes	yes	yes	319	7	.....	.....	.....	no	.....	.....	yes	.....	yes
Multnomah County Hospital	Portland	30	50	82	162	6	Ap.	April	1 yr.	yes	yes	yes	yes	$40	yes
Portland Sanitarium	Portland	50	22	30	102	1	Ap.	.....	1 yr.	no	yes	yes	yes	.....	yes
St. Vincent's Hospital	Portland	196	150	79	425	6	Ap.	April	1 yr.	no	yes	yes	yes	$40	yes
PENNSYLVANIA															
Abington Memorial Hospital	Abington	yes	yes	yes	136	4	.....	.....	1 yr.	yes	.....	yes	yes	.....	yes
Allentown Hospital [1]	Allentown	96	60	94	250	4	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Sacred Heart Hospital	Allentown	87	46	17	150	4	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Altoona Hospital	Altoona	yes	yes	yes	166	4	.....	.....	.....	yes	.....	yes	.....	.....	yes
St. Luke's Hospital	Bethlehem	yes	yes	yes	164	8	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Bryn Mawr Hospital	Bryn Mawr	37	25	73	135	4	Ap.	#	1 yr.	yes	yes	yes	yes	$25	yes
Chester Hospital [1]	Chester	104	103	43	250	4	Ap.	April	1 yr.	yes	yes	yes	yes	$30	yes
Clearfield Hospital	Clearfield	65	31	6	102	4	Ap.	March	1 yr.	yes	yes	yes	yes	$12.50	yes
G. F. Geisinger Memorial Hospital	Danville	60	60	.....	120	5	Ap.	March	1 yr.	yes	yes	yes	yes	no	yes
Easton Hospital	Easton	65	25	15	105	3	Ap.	April	24 mos.	yes	yes	yes	yes	(n)	yes
Hamot Hospital	Erie	79	60	71	210	6	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

Name of Hospital	Location	Number of Beds: Surgical	Number of Beds: Medical	Number of Beds: Other	Number of Beds: Total	Interns: Number in Hospital	Interns: By Appt. or Exam.	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo.	Training School for Nurses
St. Vincent's Hospital[1]	Erie	yes	yes	yes	215	6	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Harrisburg Hospital[1]	Harrisburg	yes	yes	yes	180	6	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Conemaugh Valley Memorial Hosp	Johnstown	yes	yes	yes	220	1	.....	.....	.....	no	.....	.....	.....	.....	yes
Lancaster General Hospital[1]	Lancaster	90	45	15	150	6	Ap.	April	1 yr.	yes	yes	yes	no	no	yes
McKeesport Hospital	McKeesport	105	80	10	195	5	Ap.	April	1 yr.	yes	yes	yes	yes	(n)	yes
Chestnut Hill Hospital	Philadelphia	yes	yes	yes	110	3	.....	.....	.....	no	.....	.....	.....	.....	yes
Frankford Hospital	Philadelphia	yes	yes	yes	118	6	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Frederick Douglass Memorial Hospital (colored)[1]	Philadelphia	yes	yes	yes	72	5	Ap.	April	1 yr.	yes	yes	yes	no	no	yes
Germantown Dispensary and Hosp.	Philadelphia	67	56	52	175	6	Ap.	****	18 mos.	yes	yes	yes	yes	no	yes
Hahnemann Hospital	Philadelphia	yes	yes	yes	303	12	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Hospital of Protestant Episcopal Church[20]	Philadelphia	yes	yes	.....	450	14	Ap.	¶	2 yrs.	yes	yes	yes	no	no	yes
Hospital of the University of Pennsylvania[1]	Philadelphia	yes	yes	yes	546	18	Ap.	March	24 mos.	yes	yes	yes	no	no	yes
Hospital of the Woman's Homeopathic Association[1]	Philadelphia	yes	yes	yes	119	2	Ap.	April	1 yr.	yes	yes	yes	no	[illegible]	yes
Hospital of Woman's Medical Col.[4]	Philadelphia	yes	yes	yes	119	6	Ap.	#	1 yr.	yes	yes	yes	yes	no	yes
Jefferson Medical College Hospital	Philadelphia	158	148	194	500	16	Ex.	§	24 mos.	yes	yes	yes	yes	no	yes
Jewish Hospital of Philadelphia	Philadelphia	yes	yes	yes	180	8	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
The Lankenau Hospital	Philadelphia	152	96	8	256	8	Ex.	****	24 mos.	yes	yes	yes	yes	no	yes
Memorial Hospital	Philadelphia	42	34	24	100	4	Ap.	April	1 yr.	yes	yes	yes	yes	$75	yes
Mercy Hospital (col.)[1]	Philadelphia	22	28	50	100	5	Ap.	#	1 yr.	yes	yes	yes	yes	no	yes
Methodist Episcopal Hospital[1]	Philadelphia	yes	yes	yes	240	8	Ex.	April	1 yr.	yes	yes	yes	no	no	yes
Misericordia Hospital	Philadelphia	130	130	40	300	11	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Mt. Sinai Hospital	Philadelphia	yes	yes	yes	150	9	Ex.	May	18 mos.	yes	yes	yes	yes	no	yes
Pennsylvania Hospital	Philadelphia	140	123	53	315	14	Ap.	Indef.	2 yrs.	yes	yes	yes	yes	no	yes
Philadelphia General Hospital[1]	Philadelphia	249	417	1,434	2,100	58	Ex.	April	24 mos.	yes	yes	yes	yes	no	yes
Philadelphia Polyclinic Hospital[1]	Philadelphia	98	68	168	330	9	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
Presbyterian Hospital	Philadelphia	yes	yes	yes	288	9	Ex.	‡‡‡	18 mos.	yes	yes	yes	yes	no	yes
Samaritan Hospital	Philadelphia	37	16	80	133	7	Ex.	Indef.	2 yrs.	yes	yes	yes	no	no	yes
St. Agnes' Hospital	Philadelphia	70	81	180	331	9	Ap.	May	1 yr.	yes	yes	yes	yes	no	yes
St. Joseph's Hospital[24]	Philadelphia	87	83	8	178	9	Ex.	April	1 yr.	yes	yes	yes	no	no	yes
St. Mary's Hospital	Philadelphia	yes	yes	yes	157	7	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Woman's Hospital of Philadelphia[4]	Philadelphia	75	50	60	185	8	Ap.	April	1 yr.	no	yes	yes	yes	no	yes
Allegheny General Hospital	Pittsburgh	yes	yes	yes	405	12	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Mercy Hospital	Pittsburgh	226	307	17	550	16	Ex.	June	14 mos.	yes	yes	yes	yes	no	yes
Montefiore Hospital Association[1]	Pittsburgh	yes	yes	yes	65	2	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
Passavant Hospital[1]	Pittsburgh	30	35	85	150	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Pittsburgh Homeopathic Hospital[1]	Pittsburgh	28	27	112	167	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Pittsburgh Hospital	Pittsburgh	52	40	38	130	4	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Presbyterian Hospital	Pittsburgh	yes	yes	yes	201	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
South Side Hospital[1]	Pittsburgh	111	73	31	215	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
St. Francis' Hospital[1]	Pittsburgh	129	206	265	600	18	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. John's General Hospital	Pittsburgh	95	65	42	202	5	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
St. Joseph's Hosp. and Dispensary	Pittsburgh	45	45	40	130	2	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
St. Margaret's Memorial Hospital[1]	Pittsburgh	57	56	25	138	4	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Western Pennsylvania Hospital[1]	Pittsburgh	167	180	103	450	22	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Pottsville Hospital	Pottsville	yes	yes	yes	161	2	.....	.....	.....	yes	yes	yes	.....	[illegible]	yes
Reading Hospital	Reading	41	38	61	140	5	Ap.	*	1 yr.	yes	yes	yes	yes	[illegible]	yes
Robert Packer Hospital	Sayre	yes	yes	yes	225	6	Ap.	#	1 yr.	yes	yes	yes	yes	(n)	yes
Hahnemann Hospital	Scranton	50	50	25	125	2	Ap.	April	1 yr.	yes	yes	yes	yes	$12.50	yes
Scranton State Hospital	Scranton	99	58	28	185	8	Ex.	April	1 yr.	yes	yes	yes	yes	$8.33	yes
Mercy Hospital[1]	Wilkes-Barre	60	50	40	150	2	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Wilkes-Barre City Hospital	Wilkes-Barre	yes	yes	yes	238	5	Ap.	April	1 yr.	no	yes	yes	yes	no	yes
Columbia Hospital[1]	Wilkinsburg	yes	yes	yes	180	5	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
RHODE ISLAND															
State Infirmary	Howard	yes	yes	yes	600	1	Ap.	Indef.	1 yr.	yes	yes	yes	yes	[illegible]	no
Memorial Hospital	Pawtucket	50	25	.....	75	2	Ap.	March	1 yr.	yes	yes	yes	yes	$16.67	yes
Rhode Island Hospital	Providence	250	200	150	600	16	Ap.	****	2 yrs.	yes	yes	yes	yes	no	yes
St. Joseph's Hospital	Providence	62	62	61	185	3	Ex.	April	16 mos.	yes	yes	yes	yes	no	yes
SOUTH CAROLINA															
Roper Hospital[8]	Charleston	130	150	20	300	6	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Columbia Hosp. of Richland County	Columbia	yes	yes	yes	125	3	.....	.....	.....	yes	.....	yes	yes	.....	yes
South Carolina Baptist Hospital[1]	Columbia	50	50	25	125	1	Ap.	Indef.	1 yr	yes	yes	yes	yes	[illegible]	yes
TENNESSEE															
Baroness Erlanger Hospital	Chattanooga	70	65	15	150	3	Ap.	March	1 yr.	yes	yes	yes	no	[illegible]	yes
Knoxville General Hospital	Knoxville	yes	yes	yes	175	8	Ap.	April	1 yr.	yes	yes	yes	no	[illegible]	yes
Baptist Memorial Hospital[1]	Memphis	165	50	210	425	4	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Memphis General Hospital	Memphis	120	50	105	275	15	Ex.	March	1 yr.	yes	yes	yes	yes	no	yes
St. Joseph's Hospital	Memphis	100	75	75	250	6	Ex.	March	1 yr.	yes	yes	yes	yes	(u)	no
Geo. W. Hubbard Hospital (col.)[1, 8]	Nashville	48	40	52	140	3	Ap.	#	1 yr.	yes	yes	yes	yes	no	yes
Nashville City Hospital	Nashville	50	50	60	160	2	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Protestant Hospital	Nashville	50	20	12	82	3	Ap.	April	1 yr.	no	few	few	no	no	yes
St. Thomas' Hospital	Nashville	100	80	80	260	4	Ap.	April	1 yr.	yes	yes	yes	yes	$40	yes
Vanderbilt University Hospital	Nashville	yes	yes	yes	115	3	Ap.	June	1 yr.	yes	yes	yes	yes	.....	yes
TEXAS															
Hotel Dieu	Beaumont	75	50	25	150	0	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Baylor Hospital[1]	Dallas	150	75	175	400	16	Ind.	¶	1 yr.	yes	yes	yes	yes	[illegible]	yes
St. Paul's Sanitarium	Dallas	200	75	35	310	6	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
John Sealy Hospital[8]	Galveston	93	119	108	320	8	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
St. Mary's Infirmary	Galveston	100	70	30	200	2	Ap.	March	1 yr.	no	yes	yes	yes	[illegible]	yes
Baptist Hospital[1]	Houston	48	40	12	100	2	Ap.	June	1 yr.	no	yes	yes	yes	[illegible]	yes
Southern Pacific Hospital	Houston	50	50	.....	100	1	Ap.	March	1 yr.	yes	yes	yes	yes	[illegible]	no
St. Joseph's Infirmary	Houston	150	130	20	300	4	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Robert B. Green Memorial Hospital	San Antonio	50	50	100	200	6	Ap.	April	1 yr.	yes	yes	yes	no	[illegible]	yes
Santa Rosa Infirmary	San Antonio	150	85	15	250	4	Ap.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes
Santa Fe Hospital	Temple	47	56	.....	103	2	Ap.	April	1 yr.	no	yes	yes	no	[illegible]	no
Scott and White Hospital	Temple	yes	yes	yes	135	3	Ap.	March	1 yr.	no	yes	yes	yes	[illegible]	yes
Providence Sanitarium	Waco	yes	yes	yes	150	1	Ind.	April	1 yr.	yes	yes	yes	yes	[illegible]	yes

Numerical and other references will be found on page 977.

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

Name of Hospital	Location	Number of Beds: Surgical	Medical	Other	Total	Interns: Number in Hospital	By Appt. or Exam.	Examined or Apply in	Length of Service	Out-Patient Service	Accident Cases	Necropsies	Med. Library	Salary per Mo.	Training School for Nurses
UTAH															
Thomas D. Dee Memorial Hospital	Ogden	75	65	......	140	2	Ap.	April	1 yr.	yes	yes	yes	yes	$45	yes
Dr. Groves' Lat. Day Saints' Hosp.[1]	Salt Lake City	100	84	35	220	4	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
Holy Cross Hospital[1]	Salt Lake City	150	50	50	250	2	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
Salt Lake County Hospital	Salt Lake City	39	22	116	178	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
St. Mark's Hospital	Salt Lake City	94	50	16	160	2	Ap.	April	1 yr	yes	yes	yes	no	$50	yes
VERMONT															
Mary Fletcher Hospital	Burlington	yes	yes	yes	150	5	Ex.	6	12 mos.	yes	yes	yes	yes	(v)	yes
Fanny Allen Hospital	Winooski	yes	yes	yes	80	2	Ap.	April	1 yr.	no	yes	yes	no	no	yes
VIRGINIA															
Hospital of St. Vincent de Paul[1]	Norfolk	168	80	22	270	3	Ap.	April	1 yr.	yes	yes	yes	no	$25	yes
Norfolk Protestant Hospital	Norfolk	65	40	12	117	1	Ap.	May	1 yr.	yes	yes	yes	yes	$25	yes
Medical College of Virginia, Hospital Division[1]	Richmond	234	78	102	414	12	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Retreat for the Sick[1]	Richmond	70	13	23	106	2	Ap.	April	1 yr.	no	yes	yes	no	$50	yes
Stuart Circle Hospital	Richmond	50	30	30	110	3	Ap.	April	1 yr.	no	yes	yes	yes	$25	yes
Jefferson Hospital[36]	Roanoke	yes	yes	yes	90	2	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
University of Virginia Hospital[1]	University	95	55	50	200	12	Ap.	April	2 yrs.	yes	yes	yes	no	no	yes
WASHINGTON															
King County Hospital	Seattle	yes	yes	yes	220	8	Ap.	April	1 yr.	yes	yes	yes	yes	$30	no
Seattle City Hospital[15]	Seattle	yes	yes	yes	135	6	Ap.	April	1 yr.	yes	yes	yes	yes	$75	yes
Seattle General Hospital[16]	Seattle	75	50	25	150	4	Ap.	Feb.	2 yrs.	no	few	no	no	yes	yes
Swedish Hospital	Seattle	yes	yes	yes	119	2	.....	.....	.....	no	.....	.....	.....	.....	yes
Maria Beard Deaconess Hospital[1]	Spokane	75	25	150	250	2	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
Sacred Heart Hospital	Spokane	225	60	36	221	2	Ap.	¶	6 mos.	yes	yes	yes	yes	$50	yes
St. Luke's Hospital	Spokane	90	30	55	175	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Northern Pacific Beneficial Assn. Hospital	Tacoma	63	68	......	131	2	Ap.	May	1 yr.	yes	yes	yes	yes	$25	no
Tacoma General Hospital	Tacoma	128	32	......	160	1	.....	.....	.....	.....	.....	yes	yes	.....	yes
WEST VIRGINIA															
Charleston General Hospital	Charleston	yes	yes	yes	125	1	Ex.	April	1 yr.	no	yes	no	yes	yes	yes
Ohio Valley General Hospital	Wheeling	yes	yes	yes	173	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
WISCONSIN															
St. Joseph's Hospital	Ashland	75	75	50	200	1	Ap.	May	1 yr.	no	yes	no	no	no	yes
St. Agnes' Hospital	Fond du Lac	yes	yes	yes	130	1	Ap.	Indef.	1 yr.	no	yes	yes	yes	$20	yes
La Crosse Lutheran Hospital	La Crosse	yes	yes	yes	130	2	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
St. Francis' Hospital	La Crosse	yes	yes	yes	200	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Madison General Hospital	Madison	yes	yes	yes	125	3	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
St. Mary's Hospital	Madison	yes	yes	......	65	2	Ap.	March	1 yr.	yes	yes	yes	yes	$50	no
St. Joseph's Hospital	Marshfield	65	50	35	150	3	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Columbia Hospital	Milwaukee	38	16	18	72	3	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Milwaukee Hospital (The Passavant)	Milwaukee	yes	yes	yes	192	7	Ap.	April	1 yr.	no	yes	yes	yes	$50	yes
Evangelical Deaconess Hospital	Milwaukee	70	40	22	132	2	.....	.....	1 yr.	yes	yes	.....	yes	$50	yes
Mt. Sinai Hospital	Milwaukee	yes	yes	yes	150	4	Ap.	May	1 yr.	yes	yes	yes	yes	$50	yes
St. Joseph's Hospital	Milwaukee	86	30	24	140	2	Ap.	March	1 yr.	yes	yes	yes	yes	$60	yes
St. Mary's Hospital	Milwaukee	120	40	30	190	5	Ap.	April	1 yr.	yes	yes	yes	yes	$25	yes
St. Mary's and Mercy Hospitals	Oshkosh	yes	yes	yes	165	1	Ap.	April	1 yr.	yes	yes	yes	yes	$50	yes
Milwaukee County Hospital[1]	Wauwatosa	100	180	20	300	9	Ex.	April	1 yr.	yes	yes	yes	yes	$50	yes
CANADA															
Montreal General Hospital	Montreal, Que.	136	109	165	400	34	Ex.	April	1 yr.	yes	yes	yes	yes	no	yes
Royal Victoria Hospital[1]	Montreal, Que.	168	102	230	500	35	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Toronto General Hospital	Toronto, Ont.	294	187	299	780	25	Ap.	April	1 yr.	yes	yes	yes	yes	no	yes
Vancouver General Hospital[1]	Vancouver, B.C.	277	298	230	900	12	Ap.	March	1 yr.	yes	yes	yes	yes	$35 (n)	yes
Winnipeg General Hospital[1]	Winnipeg, Man.	282	175	193	650	22	both	Mar. & Sept.	1 yr.	yes	yes	yes	yes	no	yes
CANAL ZONE															
Ancon Hospital	Ancon	yes	yes	yes	880	7	.....	.....	1 yr.	yes	.....	yes	.....	$75	no
HAWAII															
Queen's Hospital	Honolulu	yes	yes	yes	204	5	.....	.....	1 yr.	yes	yes	yes	yes	.....	yes
PHILIPPINE ISLANDS															
Philippine General Hospital[1]	Manila	184	124	243	551	21,	Ap. Ex.	March	1 yr.	yes	yes	yes	yes	no	yes
FOREIGN															
Peking Union Medical College Hosp.[1]	Peking, China	60	46	81	187	14	Ap.	April	1 yr.	yes	yes	yes	yes	$15	yes

1. Women interns admitted.
2. No maternity work.
3. Internships open only to graduates of local medical school.
4. Women interns only.
5. Two interns furnished every two months by Buffalo City Hospital.
6. Previous training required.
7. Interns furnished from Harper Hospital, Detroit.
8. Affiliated with Rush Medical College, Chicago.
9. Under U. S. Department of Interior.
10. Affiliated with Northwestern University Medical School.
11. Affiliated with the University of Maryland School of Medicine, Baltimore.
12. Affiliated with University of Buffalo Medical Department.
13. Affiliated with St. Mary's Infant Asylum and Maternity Hospital, Buffalo, for obstetric training.
14. Affiliated with St. Vincent's Maternity Hospital, Philadelphia, for obstetric training.
15. Affiliated with Firland Sanatorium, Seattle, for tuberculosis training.
16. Affiliated with Children's Orthopedic Hospital, Seattle, for orthopedic training.
17. Affiliated with St. Anne's Infant Asylum and Maternity Hospital, Cleveland, for obstetric training.
18. Two interns furnished every two months by Cincinnati General Hosp.
19. Affiliated with St. Alexis Hospital, Cleveland, for intern training.
20. Interns furnished by Jewish and Mt. Sinai Hospitals, Philadelphia.
21. Interns take 2 to 4 months' training as part of their two year course at Philadelphia General Hospital.
22. Affiliated with Seattle General Hospital for intern training.
23. Affiliated with Seattle City Hospital for intern training.
24. First six months' internship at Jackson Clinic, Madison, affiliated with hospital.
25. Interns furnished by University of California Medical School.
26. Women interns admitted to the children's medical service only.
27. Affiliated with Ohio State University Medical School, Columbus.
28. Interns supplied by Pennsylvania Hospital.
29. Affiliated with Kensington Hospital for Women, Philadelphia, for obstetric training.
30. Affiliated with St. Mary's Infant Asylum and Maternity Hospital and Providence Retreat, Buffalo, for obstetrical and neurological training.
31. Surgical service predominates.
32. Research hospital for malignant diseases.
33. Affiliated with University of California Medical School.
34. Affiliated with Cincinnati General Hospital for obstetric training.
35. Affiliated with St. Elizabeth's Hospital for intern training in nervous and mental diseases.
36. This applies only to general department of the hospital affiliated with Garfield Memorial Hospital for intern training in obstetrics and pediatrics.

(a) Per year.
(b) Twenty-five dollars a month for first six months, $50 a month for last six months.
(c) Twenty-five dollars for first three months, $50 per month for last three months.
(d) Fifty dollars a month during second year.
(h) Seniors $25 per month.
(i) Juniors $20, seniors $45.

Continued on page 978

HOSPITALS APPROVED FOR INTERNSHIPS—*Continued*

(j) For postgraduate students only.
(k) Twenty-five dollars for first three months, $50 for remaining months.
(l) Receive allowance for giving of anesthesia.
(?) Receive pay and allowances of 1st lieutenant.
(m) Fifteen juniors, 4 seniors.
(n) Bonus of $100 at end of term.
(o) Twenty-five dollars a month for last four months, bonus of $100 at end of term.
(p) Nurses training school not registered.
(q) Fifteen dollars for first 6 months, $20 for next 6 months and $25 for last 6 months.
(r) Thirty-five dollars a month for first year, $45 a month for second year.
(s) Bonus of $120 at end of year.
(t) Bonus of $200 at end of year.
(u) Fifty to $75 a month for seniors.
(v) Bonus of $50 at end of year.
(w) Receive senior students from accredited schools for nurses for a course of three months in practical and theoretical work.
(x) Twenty-five dollars a month while in outpatient department.
(y) Twenty-five dollars a month for last three months.
(z) Fifteen dollars a month for first 6 months, $20 a month for last 6 mos.
(bb) Six hundred dollars first year, $720 second year and $1,000 third year.
(cc) One hundred dollars a month for seniors, $75 a month for juniors.
(dd) Twenty-five dollars for first 6 months, $50 last six months.

* May and November.
** Every six months.
*** May and July.
**** Every three months.
† Every two months.
†† Doctors who have had general hospital training are chosen as interns.
††† Juniors six months, seniors 12 months.
†††† Surgical every 6 months, medical every 4 months.
‡‡‡ Every four months.
‡‡‡‡ One every 6 months.
§ April and July.
§§ February and July.
¶ April and October.
¶¶ April and December.
‖ May and August.
‖‖ Resident chosen from interns.
§§§ Bonus at end of year.

ESSENTIALS IN A HOSPITAL APPROVED FOR INTERNS

Prepared by the Council on Medical Education and Hospitals of the American Medical Association

Revised March, 1925

I. General Statements

1. Welfare of the Patients.—Only hospitals in which the entire plant and personnel constantly function primarily in the interest of the patient are acceptable for accrediting as institutions for the training of interns, however abundant the equipment of the hospital may be.

2. Minimum Number of Beds and Patients.—The hospital should have at least 100 beds and an average of seventy-five or more patients.

3. Only General Hospitals Eligible.—The hospital shall provide a variety of medical, surgical, obstetric and children patients in reasonable proportion, so as to offer interns and graduate students that clinical training which every medical practitioner should have. A hospital that is lacking in types of patients, such as maternity cases or children, may, by an approved working affiliation with other nearby institutions, supply the additional clinical material necessary. The rotating service is recommended, but teaching hospitals of high grade and reputable medical schools which have long followed the straight service should be permitted to continue that method without prejudice.

4. Interns' Living Quarters.—The hospital shall provide reasonably comfortable living quarters for the interns with opportunities for recreation, both indoor and outdoor, appropriate to the locality and environment of the hospital.

II. The Staff of the Hospital

1. Character of Staff.—There must be an organized staff of ethical physicians who hold the degree of doctor of medicine from acceptable medical schools, who are of unquestioned professional and moral integrity; who are proficient in general practice or in the special fields to which they devote themselves; who give personal attention to the patients under their charge, and who will provide adequate facilities, instruction and that sympathetic cooperation without which interns and graduate students cannot obtain the practical training for which they are serving the hospital.

2. Graduates in Medicine.—The hospital must not only confine membership on its staff to reputable practitioners who have received the degree of doctor of medicine from medical schools considered acceptable by the Council on Medical Education and Hospitals of the American Medical Association, but also must apply this ruling to every person permitted to treat or prescribe for the sick in the hospital or in any of its departments. The ruling does not apply, of course, to the treatment of patients by nurses, masseurs and other like assistants, when acting under the orders of any physician on the attending staff.

3. Resident Physicians.—It is desirable in all instances, and required in hospitals with four or more interns, that there be one or more full time resident physicians who have had at least one year's intern experience, whose duties shall include cooperation with the members of the staff in supervising the work and instruction of the interns and graduate students. Residents, however, must not be actually substitutes for the staff physicians, who shall individually be responsible for the intern's welfare, instruction and practical training. The interns themselves, however, should assume responsibility for the examination and treatment of patients while they, in turn, are under the supervision of the staff physicians of the hospital.

4. Staff Conferences and Meetings.—It is expected that there shall be, at least fortnightly, clinical-pathologic conferences or other regular staff meetings at which histories and clinical findings in selected patients may be reviewed and particularly where, in the death of patients, special study, including necropsy findings when possible, shall be undertaken. The interns and graduate students should be requested to attend these meetings and to take part in the discussions and procedures.

III. The Equipment of the Hospital

1. Laboratory.—There must be a clinical laboratory in charge of a pathologist of attainments and standing at least equal to those of other staff members, who shall be in charge of the laboratory, supervise the work of, and give instruction to the interns. The laboratory work of the interns shall include not only the simple clinical tests, but also the more technical chemical, bacteriologic and serologic work and examinations.

2. Roentgen Ray.—The roentgen-ray department shall be in charge of a roentgenologist whose attainments are at least equal to those of other staff members and who shall supervise and instruct the interns in all essential phases of roentgenology. The department must be equipped to do roentgenographic, fluoroscopic, and therapeutic work. The intern should receive instruction both in regard to the technic and dangers of roentgen-ray application and also in plate reading and in the therapeutic uses of the roentgen ray.

3. Anesthesia.—The hospital is expected to provide equipment and facilities for, and expert supervision, preferably by a staff member, over the administering of the usual kinds of local and general anesthetics and the instruction of interns in anesthesiology.

4. Medical Library.—There shall be a working medical library, in charge of a librarian, which should contain a useful selection of late editions of standard text and reference books and current files of not less than ten of the better medical journals. The library should be inside the hospital building and located where it is readily accessible to the interns and staff members. Collections of choice reference books in pathology and clinical diagnosis and in roentgen-ray work should be found respectively in the pathologic and roentgenologic laboratories.

IV. Histories and Records

1. COMPLETE HISTORIES.—There must be complete histories, giving the patient's complaint, physical examination at time of admission to hospital, preliminary diagnosis, laboratory findings, description of operation, if any, daily record of case, final diagnosis, condition and date when discharged from hospital, end-results, and in case of death, necropsy findings, if necropsy is performed.

2. ENDORSEMENT OF HISTORIES.—The histories should show, by signatures or initials, all persons writing them or parts of them, as well as the staff members by whom the histories are verified. Likewise all orders and progress notes should be initialed or signed.

3. RECORDS.—The records should be in charge of some competent person, preferably a trained office secretary; they should be kept complete and should include an alphabetical index of the patients, and another arranged by diagnoses, and the record should be so filed as to be easily accessible from either index.

V. The Work of the Intern

1. SUPERVISED RESPONSIBILITY.—The intern should assume, under careful supervision, an increasing responsibility in the diagnosis of diseases, daily observation, care and treatment of the patients under his service.

2. TYPE OF INTERN SERVICE.—In the rotation service there should be a smoothly working plan by which interns proceed in a certain routine through the various services. There should not be more than four or five changes in any single year's service; more than this cause unnecessary confusion.

3. SCOPE OF INTERN INSTRUCTION.—The hospital, through designated members of its staff, should provide adequate instruction and experience for the interns who, in effect, are fifth year medical students, in medicine, pediatrics, surgery, obstetrics and laboratory work throughout their terms of service. For the development of any physician in general practice the importance of a thorough training in pediatrics and obstetrics is especially emphasized.

4. LENGTH OF INTERN SERVICE.—The intern service should cover at least twelve months, and may to great advantage be extended through a longer period.

5. ASSIGNMENT OF WORK.—The number of patients assigned to each intern and the routine work required of him should not demand more than eight (at most, ten) hours daily. He should have ample time not only to study and read up about his patients, but also to permit of a reasonable amount of recreation.

6. GRADING OF INTERN SERVICE.—In larger hospitals, or those having four or more interns, the interns may with advantage begin their work at different times of the year and pass through junior and senior services, or the services may be further subdivided into first and second junior and first and second senior services.[4] Through some such arrangement the hospital retains a constant supply of experienced interns. The training of the intern is enhanced thereby, since junior interns will secure considerable instruction from the seniors.

7. CLINICAL LABORATORY WORK.—The intern should himself perform the laboratory work, or at least have the full benefit of laboratory findings, for each patient under his charge. A reasonable amount of work in the various laboratory tests—urine, blood, gastric contents, stools—should be performed by the intern to give him the desired amount of laboratory experience, but he should not have to undergo an unreasonable amount of routine work. Laboratory experience in the more technical, chemical, bacteriologic and serologic work may well be obtained in assisting the expert pathologist.

8. NECROPSIES.—The intern, as far as possible, should obtain experience in making necropsies under the direction of the pathologist. The hospital also should obtain as high a percentage of necropsies as is possible. This percentage is usually looked on as an index of the pathologic teaching carried on as well as of the general professional standard in the hospital.

9. ANESTHESIA.—The intern should obtain instruction and experience in the various kinds of anesthetics, under experienced medical supervision unless he is known to have had adequate instruction in his undergraduate medical course.

10. OBSTETRICS.—The intern should have experience, under the supervision of designated members of the staff, in the delivery of normal maternity patients and also in assisting in all abnormal cases.

11. ROENTGEN RAY.—The intern should receive from the roentgenologist or other qualified member of the hospital staff a reasonable amount of instruction in the technic and the therapeutics of the roentgen ray, as well as in the interpretation of plates and fluoroscopic findings.

12. DIETETICS.—The intern should receive some instruction by a qualified staff member, in the feeding of both infants and adults, as required in various diseases or conditions, and a reasonable amount of technical experience under a trained dietitian is desirable.

13. RULES REGARDING INTERNS.—The hospital should have a set of printed or written rules and regulations defining the rights, duties and privileges of the interns, a copy of which should be furnished to each intern.

14. PURPOSE OF INTERNSHIP.—It is emphasized that the object of the general internship is to round out the medical graduate's training, so as to enable him to enter on the general practice of medicine and not to equip him to enter directly on any specialty. For the latter he should obtain further and different instruction.

15. FAITHFUL SERVICE FROM INTERN EXPECTED.—For all the privileges granted the intern it is understood, of course, that the hospital has the right to expect faithful service in return.

VI. Admission to the Approved List

1. APPLICATION FOR APPROVAL.—Hospitals that want to be accredited for intern training, either as general or as special hospitals, should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago.

2. SURVEY REPORT.—A hospital Survey Report Blank in duplicate will be supplied on application. This should be filled out carefully by the superintendent or by some staff member who is acquainted with the intern service in the hospital. In addition, the Council desires also: (*a*) a list of all physicians who practice in the hospital; (*b*) an outline of the course, or order, in which the intern progresses through the different departments, and (*c*) the name of responsible instructor, length of time and amount of work required of the intern in each department.

VII. Internships in Special Hospitals

1. RESIDENCIES.—It is hoped that hereafter all internships or residencies in the specialties, whether offered in special hospitals or the special departments of general hospitals, will be open only to those physicians who have already completed an internship in a general hospital or have obtained its full equivalent in general practice. The turning out of amateur specialists should be discontinued.

APPENDIX

Suggestive Schemes for the Rotation Service

These plans are submitted for their suggestive value only. The hospitals are free to adopt them, to modify them or to adopt other plans for rotation so long as the principles in the above outline are observed.

PLAN 1

The following is suggested for a general hospital of 100 beds with four interns, two entering January 1 and two July 1, and serving three months in each of four services or a total of twelve months, as follows:

	A	B	C	D	Etc.
First 3 months	Lab.	Obs.			
Second 3 months	Surg.	Lab.			
Third 3 months	Med.	Surg.	Lab.	Obs.	
Fourth 3 months	Obs.	Med.	Surg.	Lab.	
First 3 months	Lab.	Obs.	Med.	Surg.	
Second 3 months	Surg.	Lab.	Obs.	Med.	etc.

4. See appendix.

Plan 2

Intern service in hospital of 200 beds having departments of medicine, two divisions of surgery, obstetrics, pediatrics and laboratory. There are six interns, three coming in January and three in July, and spending two months in each of six services, or a total of twelve months, as follows:

	A	B	C	D	E	F
First 2 months..	Lab.	Med.	Surg. 1	Surg. 2	Obs.	Ped.
Second 2 months..	Ped.	Lab.	Med.	Surg. 1	Surg. 2	Obs.
Third 2 months..	Obs.	Ped.	Lab.	Med.	Surg. 1	Surg. 2
Fourth 2 months..	Surg. 2	Obs.	Ped.	Lab.	Med.	Surg. 1
Fifth 2 months..	Surg. 1	Surg. 2	Obs.	Ped.	Lab.	Med.
Sixth 2 months..	Med.	Surg. 1	Surg. 2	Obs.	Ped.	Lab.

Plan 3

Intern service in hospitals of 300 beds having departments of medicine, two surgical divisions, obstetrics, orthopedics and pediatrics, and laboratory, with twelve interns beginning each July, serving twenty-four months, and spend two months in each of six services, or twelve months as a junior and as a senior during the next twelve months. There is also a resident, who serves a third twelve months or longer.

	A	B	C	D	E	F
First 2 months..	Ortho.	Med.	Surg. 1	Surg. 2	Obs.	Ped.
Second 2 months..	Ped.	Ortho.	Med.	Surg. 1	Surg. 2	Obs.
Third 2 months..	Obs.	Ped.	Ortho.	Med.	Surg. 1	Surg. 2
Fourth 2 months..	Surg. 2	Obs.	Ped.	Ortho.	Med.	Surg. 1
Fifth 2 months..	Surg. 1	Surg. 2	Obs.	Ped.	Ortho.	Med.
Sixth 2 months..	Med.	Surg. 1	Surg. 2	Obs.	Ped.	Ortho.

Plan 4

A general hospital of 260 beds, of which ninety-one are surgical, forty-five medical, thirty pediatric, twenty-six obstetric, and sixty-eight mixed. There are eight interns, four of whom enter July 1 of each year for an internship of two years. There are eight services of three months each, as follows:

1. Laboratory.
2. Gynecology and Genito-Urinary.
3. Women's Surgical, Children's Surgical, Orthopedic and Eye.
4. Women's Medical and Children's Medical.
5. Men's Medical and Medical Chiefs Off Duty.
6. Men's Surgical and Surgical Chiefs Off Duty.
7. Receiving Ward, Ambulance and Dispensary.
8. Maternity and Nose and Throat.

Plan 5

A general hospital of 300 beds, of which 100 are surgical, 150 medical, fifteen obstetric, and thirty-five periatric. There are nine interns, each intern changing services every three months, going through the services in the following order:

1. Eye, Ear, Nose and Throat. Anesthetics.
2. Pediatrics, Neurology, Psychiatry, Poisons, Tuberculosis, Contagious Diseases.
3. Junior Medicine; one-half time in Laboratory, Genito-Urinary, Proctology; Relief on Obstetrics.
4. Senior Medicine, including supervision of Medical Service and Obstetrics.
5. Junior Surgery: Emergencies, Gynecology. Second Assistant at all operations. Relieves Senior Surgery.
6. Senior Surgery: First Assistant at all operations. Minor and Major Surgery under staff supervision.

Plan 6

A city general hospital has 500 beds, of which approximately 200 are surgical, 250 medical, and fifty obstetric. There are altogether twenty-one interns, three of whom enter every quarter and remain for twenty-one months. Each group begins in the department of medicine and progresses every three months through the following services:

1. Medicine.
2. Surgery.
3. Ambulance and Emergency.
4. Assistant House Surgeon.
5. House Physician.
6. House Surgeon.
7. Specialties, including Genito-Urinary, Gynecologic, Obstetric and Eye, Ear, Nose and Throat.

SUGGESTIONS FOR THE MEDICAL LIBRARY OF THE HOSPITAL

Medical libraries for the use of the attending staff and interns in hospitals are rapidly increasing, according to the records of the hospitals approved for internships by the Council on Medical Education and Hospitals, in which we find that 77 per cent. of all those hospitals have medical libraries, whereas in 1914 only 40.7 per cent. had them. Interest in medical libraries also is indicated by hospitals that are writing in for suggestions on how to start a library, what medical books and journals to provide, and how to conduct it. Prompted by these inquiries, we wrote to a number of hospital librarians, superintendents, physicians, teachers and others, thirty-four of whom responded with suggestions, which are included in the following paragraphs.

Location

The library should be located in the building, or, if this is impossible, it should be located nearby. The location should be chosen with a view to attractiveness and the convenience and comfort of those who use the library. It is often preferable to have it on the administrative floor in close proximity to the doctor's room, as the attending staff will be most reluctant to seek the library if it is in an out-of-the-way place.

Size

The room should be sufficiently large to house the books along with the necessary furnishings, and to permit its comfortable use for reading, discussion and conversation. The very atmosphere of the room will have much to do with the extent to which it will be used. Creative imagination of the librarian or person in charge will be the biggest factor in developing and maintaining interest in the library.

Light, Heat, Ventilation and Furniture

It would be worth while for the person who is building up such a library to visit similar libraries and study the elements that seem to make them a success. Any well ordered and well used library, whether medical or not, would furnish good suggestions. The best type of shelf or rack is whatever enables the book or journal to be quickly found and easily removed and easily replaced. There should be a complete card index. Binding journals into volumes adds much to their life and usefulness.

Person in Charge

A suitable person, with regular library training and experience is desirable, but is not always available. In the absence of an experienced librarian, the room should be placed in charge of some competent person, frequently the superintendent or record clerk or some other person selected from among the regular administrative personnel. Whoever is chosen for this duty has an opportunity to render an unusual service, for through the library both the interns and the attending staff may be stimulated to greater zest and more thoroughness in their work.

The Use of the Library

The library should be open for such time and at such hours as will serve the convenience of those for whose benefit it is maintained—morning, afternoon and evening, if necessary. New material should be constantly added, and obsolete, irrelevant volumes discarded or placed elsewhere. The latter remark would, of course, not apply to standard works that maintain their value despite their age. Books, journals and other materials of the library should be available for removal and use, subject to necessary rules. However small the library may be, the one in charge must see that borrowed materials are returned. The necessary cost of maintaining a library is not prohibitive. It is, of course, a legitimate item for the regular budget. It is the excellent plan in some hospitals for each member of the medical staff to show his interest in the professional side of the hospital by contribut-

ing at least a small sum annually toward maintaining and improving the library.

One of the most important functions of a medical library in any hospital is that of assisting attending physicians and interns in finding material for the preparation of papers, discourses and special reports. This service will be especially appreciated by physicians, because the preparation of papers for reading before staff meetings or medical gatherings or for publication is one of the physician's means of professional growth. In this part of her work, as in other phases of the library service, the librarian can usually find much help outside the hospital's own library, in public libraries, medical society libraries, and in the offices of physicians. Excellent service is provided by some state governments, and various medical and related organizations maintain package libraries and indexes of medical literature.

READING MATTER

The library should not be allowed to become a depository of antiques. Only recent books should be used, with the exception of such standard works as are recognized as classics in their respective lines and which do not grow obsolete with age, such as Keen's "Surgery" or Osler's "Principles and Practice of Medicine." On the other hand, the literature on therapy, for example, is changing so rapidly as to warrant only the use of the most recent books, while in the field of the more fully developed sciences, such as anatomy and histology, literature is more stabilized and books live longer.

SUGGESTIVE LIST OF BOOKS

The accompanying list is not intended to be complete. It is compiled from hundreds that were suggested, and is offered here for the assistance of those who wish a suggested list as a nucleus. The library, of course, will grow with the addition of fresh literature as it is produced.

Cabot, Hugh: Modern Urology. Lea & Febiger, 706-710 Sansom Street, Philadelphia. Two volumes. $18. 1924.

Cabot, R. C.: Differential Diagnosis. W. B. Saunders Company, West Washington Square, Philadelphia. $7. 1919.

Cabot, R. C.: Physical Diagnosis. William Wood & Co., 51 Fifth Avenue, New York. $5. 1923.

Crile, G. W.: Thyroid Gland. W. B. Saunders Company, West Washington Square, Philadelphia. $5. 1922.

Da Costa, J. C.: Modern Surgery. W. B. Saunders Company, West Washington Square, Philadelphia. $8. 1919.

Dana, C. L.: Nervous Diseases. William Wood & Co., 51 Fifth Avenue, New York. $6.50. 1920.

De Lee, J. B.: Obstetrics. W. B. Saunders Company, West Washington Square, Philadelphia. $12. 1924.

De Schweinitz, G. E.: Diseases of the Eye. W. B. Saunders Company, West Washington Square, Philadelphia. $10. 1924.

Dorland, W. A. N.: American Illustrated Medical Dictionary. W. B. Saunders Company, West Washington Square, Philadelphia. $8. 1923.

Fishberg, Maurice: Pulmonary Tuberculosis. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $8.50. 1922.

Garrison, F. H.: History of Medicine. W. B. Saunders Company, West Washington Square, Philadelphia. $9. 1921.

Graves, W. P.: Gynecology. W. B. Saunders Company, West Washington Square, Philadelphia. $9. 1923.

Gray, Henry: Anatomy. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $9. 1918.

Hare, H. A.: Practical Therapeutics. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $6.50. 1922.

Hawk, P. B.: Practical Physiological Chemistry. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $5. 1921.

Hess, J. H.: Principles and Practice of Infant Feeding. F. A. Davis Company, 1914-1916 Cherry Street, Philadelphia. $4. 1922.

Hewitt, F. W.: Anaesthetics and Their Administration. Oxford University Press, 35 West Thirty-Second Street, New York. $9. 1922.

Holt, L. E., and Howland, John: Diseases of Infancy and Childhood. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $7.50. 1922.

Howell, W. H.: A Text-Book of Physiology. W. B. Saunders Company, West Washington Square, Philadelphia. $6.50. 1924.

Joslin, E. P.: Diabetes. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $8. 1923.

Keen, W. W.: Surgery. W. B. Saunders Company, West Washington Square, Philadelphia. Eight volumes. $79. 1906-1921.

Keyes, E. L.: Urology. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $8. 1923.

Kober, G. M., and Hayhurst, E. R.: Industrial Health. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $15. 1924.

MacCallum, W. G.: A Text-Book of Pathology. W. B. Saunders Company, West Washington Square, Philadelphia. $10. 1920.

May, C. H.: Diseases of the Eye. William Wood & Co., 51 Fifth Avenue, New York. $4. 1924.

Mackenzie, J.: Heart Disease and Pregnancy. Oxford University Press, 35 West Thirty-Second Street, New York. $3.50. 1921.

Osler, William, and McCrae, Thomas: The Principles and Practice of Medicine. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. 1920. (Subs.)

Pharmacopoeia of the United States. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $4.50. 1916.

Publications of the American Medical Association, 535 North Dearborn Street, Chicago:

Epitome of the Pharmacopeia of the United States and the National Formulary, 60 cents. 1921.
New and Nonofficial Remedies, $1.50. 1922.
Nostrums and Quackery, Vol. 2, $2. 1921.
Useful Drugs, 60 cents. 1923.

Pusey, W. A.: Principles and Practice of Dermatology. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $10. 1924.

Quarterly Cumulative Index to Current Medical Literature. Published by the American Medical Association, 535 N. Dearborn St., Chicago. The Index, which appears quarterly, covers about 270 of the best medical publications, both foreign and domestic. Articles can be located either under subject or author. The Index also contains addresses of the publishers, together with the subscription prices, lists of new books, arranged under author and under subject, and a list of recent U. S. government documents of interest to physicians.

Rosenau, M. J.: Preventive Medicine and Hygiene. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $10. 1921.

Webster, Ralph W.: Diagnostic Methods; Chemical, Bacteriological and Microscopical; a textbook for students and practitioners. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $8. 1923.

White, W. A.: Outlines of Psychiatry Nervous and Mental Disease Publishing Company, 3617 Tenth Street, N. W., Washington, D. C. $4. 1923.

MEDICAL JOURNALS

A selection of a few leading medical journals is indispensable. In fact, all persons who replied suggested journals, whether they mentioned books or not.

Obviously, the average hospital library will contain only a portion of the following list:

1. *General Medicine:*

It is desirable that the Library of a general hospital should receive several of this group, and that most of this list and the surgery list be made available before journals from the special lists are included. The specialties receive a certain amount of attention in the general medical and surgical publications listed here.

American Journal of the Medical Sciences, Lea & Febiger, 600 South Washington Square, Philadelphia. M. $6.

Archives of Internal Medicine, American Medical Association, 535 North Dearborn Street, Chicago. M. $5.

Boston Medical and Surgical Journal, 126 Massachusetts Avenue, Boston. W. $6.

British Medical Journal, 429 Strand, W.C., London. W. 1 shilling. 3d per issue.

Bulletin of the Johns Hopkins Hospital, Johns Hopkins Press, Baltimore. M. $4.

Canadian Medical Association Journal, 836 University Street, Montreal. M. $6.

Journal of the American Medical Association, 535 North Dearborn Street, Chicago. W. $5.

Lancet, Oxford University Press, 35 West Thirty-Second Street, New York. W. $12.

The Medical Clinics of North America, W. B. Saunders Company, West Washington Square, Philadelphia. Bi-M. Cloth, $16; paper, $12.

Medical Journal and Record, A. R. Elliott Publishing Company, 53 Park Place, New York. Semi-M. $6.

Medical Science, Abstracts and Reviews, Oxford University Press, 35 West Thirty-Second St., New York. M. 30 shillings.

Progressive Medicine, Lea & Febiger, 706 Sansom Street, Philadelphia. Q. $11.

Quarterly Journal of Medicine, Humphrey Milford, Amen Corner, London, E. C. 35 S. Q.

The journal of the state or locality in which the hospital is situated should be included.

2. *Surgery:*

American Journal of Surgery (with Anesthesia Supplement), Surgery Publishing Company, 15-19 East Twenty-Sixth Street, New York. M. $2.

Annals of Surgery, J. B. Lippincott Company, East Washington Square, Philadelphia. M. $10.

Archives of Surgery, American Medical Association, 535 North Dearborn Street, Chicago. Bi-M. $8.

British Journal of Surgery, William Wood & Co., 51 Fifth Avenue, New York. Q. $10.
Surgery, Gynecology and Obstetrics, Surgical Publishing Company, 54 East Erie Street, Chicago. M. $12.
Surgical Clinics of North America, W. B. Saunders Company, West Washington Square, Philadelphia. Bi-M. Cloth, $16; paper, $12.

3. *Specialties:*

In special hospitals, the selection of journals should favor those listed under that specialty, together with journals of the "General Medicine" or "Surgery" list.

DERMATOLOGY AND SYPHILOLOGY

American Journal of Syphilis, C. V. Mosby Company, St. Louis. Q. $7.
Archives of Dermatology and Syphilology, American Medical Association, 535 North Dearborn Street, Chicago. M. $8.
British Journal of Dermatology and Syphilis, H. K. Lewis & Co., Ltd., 28 Gower Place, London, W. C. 1. M. 2 guineas.

HYGIENE AND PUBLIC HEALTH

American Journal of Public Health, 370 Seventh Avenue, New York. M. $5.
Journal of Industrial Hygiene, 55 Van Dyke Street, Boston. M. $6.
United States Public Health Reports, Superintendent of Documents, Government Printing Office, Washington, D. C. W. $1.50.

INFECTIOUS DISEASES

American Journal of Tropical Medicine, Williams & Wilkins Company, Baltimore. Bi-M. $5 per volume.
American Review of Tuberculosis, National Tuberculosis Association, 370 Seventh Avenue, New York. M. $8.
British Journal of Tuberculosis, G. E. Stechert & Co., 31-33 East Tenth Street, New York. Q. $2.50.
Journal of Infectious Diseases, 637 South Wood Street, Chicago. M. $5.

NERVOUS AND MENTAL DISEASES

American Journal of Psychiatry, Johns Hopkins Press, Baltimore. Q. $5 per volume.
Archives of Neurology and Psychiatry, American Medical Association, 535 North Dearborn Street, Chicago. M. $8.
Brain, MacMillan Company, Ltd., St. Martin's Street, W. C. London. Irreg. 24 shillings net.
Journal of Nervous and Mental Diseases, Dr. Smith E. Jelliffe, editor and publisher, 64 West Fifty-Sixth Street, New York. M. $10.

OBSTETRICS AND GYNECOLOGY

American Journal of Obstetrics and Gynecology, C. V. Mosby Company, St. Louis. M. $6.
Bulletin Lying-In Hospital of the City of New York. Irreg. $1.
Surgery, Gynecology and Obstetrics (listed under Surgery), Surgical Publishing Company, 54 East Erie Street, Chicago. M. $12.

OPHTHALMOLOGY

American Journal of Ophthalmology, Ophthalmic Publishing Company, 7 West Madison Street, Chicago. M. $10.
Archives of Ophthalmology, G. P. Putnam's Sons, 2 West Forty-Fifth Street, New York. Bi-M. $6.

ORTHOPEDIC SURGERY

Journal of Bone and Joint Surgery, 372 Marlborough Street, Boston. Q. $5.
Review of "Orthopedic Surgery" in Archives of Surgery. (See Surgery.)

OTOLOGY, RHINOLOGY AND LARYNGOLOGY

Annals of Otology, Rhinology and Laryngology, Annals Publishing Company, 5154 Westminster Place, St. Louis. Q. $6.
Archives of Otolaryngology, American Medical Association, 535 N. Dearborn Street, Chicago. M. $6.
Journal of Laryngology and Otology, G. E. Stechert & Co., 31-33 East Tenth Street, New York. M. 40 shillings.

PEDIATRICS

American Journal of Diseases of Children, American Medical Association, 535 North Dearborn Street, Chicago. M. $5.
Archives of Pediatrics, E. B. Treat & Co., East Seventeenth Street, New York. M. $5.
British Journal of Children's Diseases, Adlard & Son & West Newman, Ltd., Bartholomew Close, London, E. C. 1. Q. $6.

RADIOLOGY

American Journal of Roentgenology, Paul B. Hoeber, 67 East Fifty-Ninth Street, New York. M. $10.
Journal of Radiology, 121 South Thirty-Third Street, Omaha. M. $5.
Radiology, 402 Guardian Life Building, St. Paul. M. $5.

UROLOGY

Journal of Urology, Williams & Wilkins Company, Baltimore. M. $4 per volume.

4. *Fundamental Sciences and Medical Research:*

The medical graduate of today thinks in terms of the fundamental sciences. A varied selection should be made from this group:

American Journal of Anatomy, Wistar Institute of Anatomy & Biology, Thirty-Sixth Street and Woodland Avenue, Philadelphia. Bi-M. $7.50 per volume.
American Journal of Pathology, Dr. F. B. Mallory, Boston City Hospital, Boston. Bi-M. $5 net.
American Journal of Physiology, American Physiological Society, 19 West Chase Street, Baltimore. M. $5 per volume.
British Journal of Experimental Pathology, H. K. Lewis & Co., 28 Gower Place, London, W. C. 1. Bi-M. £2.
Journal of Biological Chemistry, Rockefeller Institute for Medical Research, Sixty-Sixth Street and Avenue A, New York. M. $5 per volume.
Journal of Experimental Medicine, Rockefeller Institute for Medical Research, Sixty-Sixth Street and Avenue A, New York. M. $5.
Journal of Laboratory and Clinical Medicine, C. V. Mosby Company, St. Louis. M. $7.
Journal of Pharmacology and Experimental Therapeutics, Williams & Wilkins Company, Baltimore. M. $6.
Journal of Physiology, Cambridge University Press, Fetter Lane, London, E. C. 4. Irreg. Price varies.
Physiological Reviews, American Physiological Society, 19 West Chase Street, Baltimore. Q. $6 per volume.

5. *Hospital Journals:*

Hospital Management, The Crain Publishing Company, 537 South Dearborn Street, Chicago. M. $2.
Hospital Progress, the Catholic Hospital Association, 124 Thirteenth Street, Milwaukee. M. $3.
Modern Hospital, Modern Hospital Publishing Company, 22 East Ontario Street, Chicago. M. $3.

SOME ADDITIONAL MEDICAL BOOKS

The following medical books are among those that were suggested and are listed in order to provide a wider selection and to be used in connection with the further expansion of the library:

Adami, J. G., and McCrae, John: A Text-Book of Pathology for Students of Medicine. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5. 1914.
Anspach, B. M.: New Gynecology. J. B. Lippincott Company, East Washington Square, Philadelphia. $9. 1921.
Ballenger, W. L.: Diseases of the Nose, Throat and Ear. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5.50. 1914.
Barker, L. F., and others: Endocrinology and Metabolism. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. Five volumes. $48.50. 1923.
Bartlett, Willard: After Treatment of Surgical Patients. C. V. Mosby Company, Grand Avenue, St. Louis. Two volumes. $16. 1920.
Bastedo, W. A.: Materia Medica; Pharmacology; Therapeutics; Prescription Writing. W. B. Saunders Company, West Washington Square, Philadelphia. $4. 1918.
Berkeley, C., and Bonney, V.: Difficulties and Emergencies of Obstetric Practice. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $11. 1920.
Billings, Frank: Focal Infection. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $2. 1916.
Bing, R.: Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord. Rebman Company, 37 East Nineteenth Street, New York. $4. 1920.
Binnie, J. F.: Operative Surgery. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $12. 1921.
Bowlby, A. A., and Andrewes, F.: Surgical Pathology and Morbid Anatomy. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $8. 1920.
Boyd, William: Physiology and Pathology of the Cerebrospinal Fluid. MacMillan Co., 66 Fifth Ave., New York. $5. 1920.
Bradford, E. H., and Lovett, R. W.: Orthopedic Surgery. William Wood & Co., 51 Fifth Avenue, New York. $3.75. 1915.
Braun, H.: Local Anesthesia. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5. 1924.
Camac, C. N. B.: Epoch Making Contributions to Medicine, Surgery and the Allied Sciences. W. B. Saunders Company, West Washington Square, Philadelphia. $4. 1909.
Carman, R. D.: Roentgen Diagnosis of Diseases of the Alimentary Tract. W. B. Saunders Company, West Washington Square, Philadelphia. $8.50. 1920.
Carter, Howe and Mason: Nutrition and Clinical Dietetics. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $7.50. 1923.
Christian, H. A., and Mackenzie, James: Oxford Loose-Leaf Medicine. Oxford University Press, 35 West Thirty-Second Street, New York. Six volumes. $90. 1920-1921.
Church, A., and Peterson, F.: Nervous and Mental Diseases. W. B. Saunders Company, West Washington Square, Philadelphia. $7. 1919.
Contributions to Medical and Biological Research; Dedicated to Sir William Osler. Paul B. Hoeber, 69 East Fifty-Ninth St., New York, 1919.

Crossen, H. S.: Diseases of Women. C. V. Mosby Company, Grand Avenue, St. Louis. $10. 1922.

Crossen, H. S.: Operative Gynecology. C. V. Mosby Company, Grand Avenue, St. Louis. $10. 1920.

Cummer, C. L.: Manual of Clinical Laboratory Methods. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5.50. 1922.

Cushing, H. W.: Tumors of the Nervus Acusticus. W. B. Saunders Company, West Washington Square, Philadelphia. $5. 1917.

Cushny, A. R.: Text-Book of Pharmacology and Therapeutics. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $6. 1924.

Darier, J.: Text-Book of Dermatology. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $8.50. 1920.

Davis, G. G.: Applied Anatomy. J. B. Lippincott Company, East Washington Square, Philadelphia. $9. 1924.

Dunn, C. H.: Pediatrics. Southworth Company, State Bank Building, Troy, N. Y. Three volumes. $27. 1922.

Edmunds, C. W. and Cushny, A. R.: Pharmacology. George Wahr, Ann Arbor, Mich. $2. 1918.

Ellinson, E. L.: First Aid in Emergencies. J. B. Lippincott Company, East Washington Square, Philadelphia. $1.75. 1920.

Ewing, James: Neoplastic Diseases. W. B. Saunders Company, West Washington Square, Philadelphia. $12. 1922.

Eyclesbymer, A. C., and Shoemaker, D. M.: Cross Section Anatomy. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $20. 1911.

Fantus, Bernard: Useful Cathartics. American Medical Association, 535 North Dearborn Street, Chicago. $1. 1920.

Feldman, W. M.: Antenatal and Postnatal Child Physiology. Longmans, Greene & Co., 55 Fifth Avenue, New York. $10.50. 1920.

Fischer, E.: Introduction to the Preparation of Organic Compounds. D. Van Nostrand Company, 8 Warren Street, New York. $1.50. 1922.

Foote, E. M.: Minor Surgery. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $8. 1923.

Forchheimer, Frederick; and Billings, Frank: Therapeusis of Internal Diseases. Blumer edition. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. Six volumes. $52.50. 1924.

Frazier, C. H., and Allen, A. R.: Surgery of the Spine and Spinal Cord. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $8. 1918.

French, Herbert: Index of Differential Diagnosis of Main Symptoms. William Wood & Co., 51 Fifth Avenue, New York. $12. 1918.

Fuchs, Ernst: Text-Book of Ophthalmology. J. B. Lippincott Company, East Washington Square, Philadelphia. $9. 1923.

Goepp, R. M.: State Board Questions and Answers. W. B. Saunders Company, West Washington Square, Philadelphia. $6. 1923.

Griffith, J. P. C.: Diseases of Infants and Children. W. B. Saunders Company, West Washington Square, Philadelphia. Two volumes. $16. 1919.

Gwathmey, J. T.: Anesthesia. MacMillan Company, 66 Fifth Avenue, New York. $6.50. 1924.

Hewlett, A. W.: Pathological Physiology of Internal Diseases. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $7.50. 1923.

Hill, L. W.: Practical Infant Feeding. W. B. Saunders Company, West Washington Square, Philadelphia. $5. 1922.

Hirst, J. C.: Obstetrics. W. B. Saunders Company, West Washington Square. Philadelphia. $4.50. 1924.

Holmes, G. W., and Ruggles, H. E.: Roentgen Interpretation. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $3.25. 1921.

Janeway, H. H.: Radium Therapy in Skin Cancer. Paul B. Hoeber, 69 East Fifty-Ninth St., New York. $2.25. 1917.

Jelliffe, S. E., and White, W. A.: Diseases of the Nervous System. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $9.50. 1923.

Jones, Robert: Orthopedic Surgery of Injuries. Oxford University Press, 35 West Thirty-Second Street, New York. Two volumes. $18. 1921.

Jordan, E. O.: Text-Book of General Bacteriology. W. B. Saunders Company, West Washington Square, Philadelphia. $5. 1921.

Kanavel, A. B.: Infections of the Hand. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5.50. 1921.

Ker, C. B.: Infectious Diseases. Oxford University Press, 35 West Thirty-Second Street, New York. $14. 1920.

Labat, G.: Regional Anaesthesia. W. B. Saunders Company, West Washington Square, Philadelphia. $7. 1922.

Lang, H.: German-English Medical Dictionary. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $7. 1924.

Lewis, Thomas: Mechanism and Graphic Registration of the Heart Beat. Paul B. Hoeber, 69 East Fifty-Ninth St., New York. $16. 1921.

McCollum, E. V.: Newer Knowledge of Nutrition. MacMillan Company, 66 Fifth Avenue, New York. $3.80. 1922.

McFarland, Joseph: Pathogenic Bacteria. W. B. Saunders Company, West Washington Square, Philadelphia. $4.75. 1919.

MacLeod, J. J. R.: Physiology and Biochemistry in Modern Medicine. C. V. Mosby Company, Grand Avenue, St. Louis. $11. 1922.

Mallory, F. B.: Principles of Pathologic Histology. W. B. Saunders Company, West Washington Square, Philadelphia. $5.50. 1914.

Mayo Clinic: Collected Papers. W. B. Saunders Company, West Washington Square, Philadelphia. $12. 1922.

Mock, H. E.: Industrial Medicine and Surgery. W. B. Saunders Company, West Washington Square, Philadelphia. $10. 1919.

Morris, R. S.: Clinical Laboratory Diagnosis. D. Appleton & Co., 29-35 West Thirty-Second St., New York. $6. 1923.

Morse, J. L., and Talbot, F. B.: Diseases of Nutrition and Infant Feeding. MacMillan Company, 66 Fifth Avenue, New York. $4. 1920.

Newell, F. S.; Norris, C. C., and others: Gynecological and Obstetrical Monographs. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. Fifteen volumes. $60. 1922.

Ochsner, A. J.: Surgical Diagnosis and Treatment. Lea & Febiger, 706-710 Sansom Street, Philadelphia. Four volumes. $40. 1920.

Ochsner, A. J., and Percy, N. M.: A New Manual of Surgery. Cleveland Press, 1410 East Ninth Street, Cleveland. $8. 1917.

Ochsner, A. J., and Thompson, R. L.: Surgery and Pathology of the Thyroid and Parathyroid Glands. C. V. Mosby Company, Grand Avenue, St. Louis. $5. 1916.

Osborne, O. T., and Fishbein, Morris: Handbook of Therapy. American Medical Association, 535 North Dearborn Street, Chicago. $2.50. 1923.

Osler, William; and McCrae, Thomas: Modern Medicine. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $5. 1915.

Phillips, W. C.: Diseases of the Ear, Nose and Throat. F. A. Davis Company, 1914 Cherry Street, Philadelphia. $8. 1922.

Piersol, G. A.: Human Anatomy. J. B. Lippincott Company, East Washington Square, Philadelphia. Two volumes. $10. 1918.

Pilcher, P. M.: Practical Cystoscopy. W. B. Saunders Company, West Washington Square, Philadelphia. $7.50. 1915.

Porter, L., and Carter, W. E.: Management of the Sick Infant. C. V. Mosby Company, Grand Avenue, St. Louis. $8.50. 1924.

Pottenger, F. M.: Clinical Tuberculosis. C. V. Mosby Company, Grand Avenue, St. Louis. Two volumes. $15. 1922.

Quain, Jones and Quain: Elements of Anatomy. Longmans, Greene & Co., 55 Fifth Avenue, New York. $8. 1923.

De Quervain, F.: Clinical Surgical Diagnosis. William Wood & Co., 51 Fifth Avenue, New York. $14. 1921.

Rose, W., and Carless, A.: Manual of Surgery. William Wood & Co., 51 Fifth Avenue, New York. $11. 1924.

Schafer, E. A.: Essentials of Histology. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $4.50. 1920.

Schamberg, J. F.: Diseases of the Skin and Eruptive Fevers. W. B. Saunders Company, West Washington Square, Philadelphia. $5. 1921.

Schleip, K. F. W.: Hematological Atlas. Rebman Company, 37 East Nineteenth Street, New York. $10. 1920.

Scudder, C. L.: Fractures and Dislocations. W. B. Saunders Company, West Washington Square, Philadelphia. $8.50. 1922.

Shattuck, G. C.: Principles of Medical Treatment. W. M. Leonard, 711 Boylston Street, Boston. $3.50. 1921.

Simon, C. E.: Clinical Diagnosis. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $9. 1922.

Skillern, R. H.: The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose. J. B. Lippincott Company, East Washington Square, Philadelphia. $6.50. 1920.

Smithies, F., and Ochsner, A. J.: Cancer of the Stomach. W. B. Saunders Company, West Washington Square, Philadelphia. $7. 1916.

Spalteholz, K. W.: Hand Atlas of Human Anatomy. G. E. Stechert & Co., 31-33 East Tenth Street, New York. Three volumes. $12.50.

Speed, Kellogg: Fractures and Dislocations. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $6. 1916.

Stelwagon, H. W.: Diseases of the Skin. W. B. Saunders Company, West Washington Square, Philadelphia. $2.25. 1921.

Still, G. F.: Common Disorders and Diseases of Childhood. Oxford University Press, 35 West Thirty-Second Street, New York. $7.50. 1924.

Stimson, L. A.: Practical Treatise on Fractures and Dislocations. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $6. 1917.

Stitt, E. R.: Practical Bacteriology. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. $5. 1923.

Sutton, R. L.: Diseases of the Skin. C. V. Mosby Company, Grand Avenue, St. Louis. $10. 1923.

Tanzi, Eugenio: Mental Diseases. Rebman Company, 37 East Nineteenth Street, New York. $7. 1910.

Vaughan, V. C.; Vaughan, H. F., and Palmer, G. T.: Epidemiology and Public Health. C. V. Mosby Company, Grand Avenue, St. Louis. $9. 1922.

Villiger, Emil: Brain and Spinal Cord. J. B. Lippincott Company, East Washington Square, Philadelphia. $5. 1919.

Warbasse, J. P.: Surgical Treatment. W. B. Saunders Company, West Washington Square, Philadelphia. Three volumes. $30. 1918.

White, J. W., and Martin, Edward: Genito-Urinary Surgery. J. B. Lippincott Company, East Washington Square, Philadelphia. $8.50. 1920.

Whitman, Royal: Orthopedic Surgery. Lea & Febiger, 706-710 Sansom Street, Philadelphia. $9. 1923.

Williams, J. W.: Obstetrics. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $9. 1923.

Witthaus and Becker: Medical Jurisprudence and Toxicology. William Wood & Co., 51 Fifth Avenue, New York. Four volumes. $24. 1906-1911.

Wood, F. C.: Chemical and Microscopic Diagnosis. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $5.50. 1917.

Zinsser, Hans: Bacteriology. D. Appleton & Co., 29-35 West Thirty-Second Street, New York. $7.50. 1922.

Zinsser, Hans: Infection and Resistance. MacMillan Company, 66 Fifth Avenue, New York. $5. 1923.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MARCH 28, 1925

THE DURABILITY AND MAINTENANCE OF SANITARY WORKS

A characteristic feature of the nineteenth century was its zeal for sanitation; probably never before in the history of the world was so much attention given to the cleanliness of the human environment. While several causes doubtless contributed to this end, notably the theory that disease was due to the emanations from putrefying matter, it was largely the installation of public water supplies and the invention of the water-closet which, by creating a large volume of putrescible and dangerous fluid, gave birth to the problems of sewage disposal. No one has even attempted to estimate the total expenditure for sanitary purposes in the civilized modern world in the last fifty years, but it must have been prodigious.

The first period, that is, the construction of sanitary works out of the clear sky for the first time, is almost if not quite ended in most parts of the United States. We are now well into the second stage, in which the original sanitary works are being renewed or replaced by others, perhaps for the second or third time. Improvements are being introduced or advocated, and much experience has accumulated. It is a good time to look about us.

It is of little use to dwell on mistakes of the past except as they help us in formulating present plans or in avoiding future trouble. Insufficient knowledge at any stage can hardly fail to be productive of error, and sanitary engineers cannot be blamed if they follow the best practice of the time. If available knowledge is not utilized, however, there may be just cause for complaint. The present confused, halting and wasteful methods of garbage disposal indulged in by many American cities offer a striking example of municipal inefficiency. Competent expert advice is obtainable, but is rarely employed. "Studies" are made by "committees" of aldermen. One municipality abandons reduction to try incineration; another, not far distant, scraps its incinerating plant and attempts to make money by reduction; another tries feeding garbage to hogs. After a few years each city turns to something new, and the rôles are exchanged. Too often the health of the community is made an excuse for much political fumbling with questions of garbage disposal. Although garbage disposal is not primarily a health problem, genuine health interests sometimes suffer because of the inefficiency and extravagance shown by the municipal authorities in their attempts to achieve the seemly disposal of household refuse.

There are two conclusions that seem justified by the general history of American sewage and garbage plants: First, insufficient attention is paid to the details of operation and to securing permanent competent expert supervision; second, perhaps connected with the first, the life of sanitary works is surprisingly short. One of the engineering journals has lately commented on the abandonment of the sewage plant in an Ohio city after only fifteen years of activity. If this is representative—and the matter deserves investigation—taxpayers everywhere must be prepared to meet a much heavier expense for sanitation than has been generally contemplated. It does not appear that enough is known about the durability of sewage and garbage disposal works, although in any well conceived sanitary program this is an item of considerable importance. "A survey of the life of American sewage and garbage plants would be useful. Probably the results would be appalling." [1]

There is little doubt that operating inefficiency is in part responsible for the short lived character of sanitary works. Too often a properly planned and well constructed plant is placed in the hands of poorly paid and relatively inexperienced men. How can good results be expected?

It should be recognized that the success of sanitary works will be measured more and more by economy of construction and maintenance. There are signs that the American taxpayer, if he has not reached the limit of his easy-going endurance, is nearing it. In the future it will not be so easy to put through a program of sanitation without fairly definite assurance that it will meet the desired end, that it is reasonably conceived, and that it will be economically carried out. It is evident that the choice, the construction and the maintenance of works of sanitation should be entrusted to the trained sanitary engineer rather than to committees of American business men or lawyers. While democracies are notoriously distrustful of the expert, it is being grudgingly recognized that the machinery of modern life cannot function without him. The modern physician, with his years of specialized training, does not need to be converted to this view. He is not a sanitary engineer himself. But he can in his rôle of trusted adviser to the community on public health matters insist that the building and operation of sanitary works—their anatomy and physiology—be

1. Engineering News-Record, 1924, p. 411.

placed unreservedly in the hands of the trained sanitarian. In this way there is no doubt that some mistakes in the formulation and execution of sanitary programs could be avoided, that gross blunders in operation and maintenance would be prevented, and that untold sums would be saved to the local taxpayers throughout the country.

THE BASAL METABOLISM IN EMOTIONAL STATES

The estimation of the "standard metabolism" or "basal metabolic rate" has come into vogue so rapidly that the technic has scarcely been mastered with sufficient accuracy in many places. Moreover, the limitations of the findings are not yet always clearly understood. That the age, size and sex of the person examined affect the determinations is a fundamental postulate. The instrumental error is one that must be specially controlled by each investigator and technician. As Du Bois [1] has further pointed out, there may be, aside from disease, undiscovered slight extraneous factors that modify the metabolism of the subject, such as physical exhaustion on the previous day, or unsuspected illness or unconscious increase in the muscular tension. The sum total of all these, he adds, shows us the variations in our measurements, and this is of tremendous importance from a practical standpoint when we attempt to interpret the results of any one determination. We can rest assured, however, that the actual variations of the basal metabolism are smaller than the variations of the measurements.

The influence of activity of the nervous system per se on the exchange of energy in the body has for the most part been negligible. The nervous tissue constitutes at most only about one fiftieth of the entire mass of the body, so that even a large increment in its nutritive or energy transformations would be likely to be overshadowed and overlooked in the total metabolism of the other active tissues. Of course, the possibility of indirect influences on the latter through the nervous system cannot be so easily set aside. An influence from intensive mental effort alone has not yet been clearly detected, but there are indications of the effect of strong emotions. Grafe [2] and his associates in Germany have recorded unmistakable increases in basal metabolism, seemingly independent of increases in respiration or heart action. They are attributed by him to a general alteration in the organs as the result of the stimuli from the centers in the brain passing out to the periphery chiefly by means of the nervous system, as well as some increase in the metabolism of the brain itself.

Something comparable to this is recorded by Ziegler and Levine [3] from observations on psychoneurotic persons without goiter. They may respond by an increased metabolic rate when thinking about an emotion-producing aspect of their past history. The most frequent objective responses to emotion-producing suggestions are reported to be small changes in the color of the skin, slight change in the rate and amplitude of respiration, and very fine tremors. Ziegler and Levine point out that lying apparently still in bed is not to be taken as a criterion of rest. The significant increments in metabolism occur only when the emotions are actually awakened. The possible pharmacodynamic importance of certain ideas and imaginations, obsessive thoughts and painful reminiscences are thus brought into new relief.

The change in metabolism through suggestions of emotion may give new clues to unsuspected expenditures of energy. What a lowered threshold of emotional reactivity means for the problem of exophthalmic goiter remains to be learned. It has already been suggested [4] that increases in metabolism from emotion may be due to an increased secretion of epinephrin according to the emergency theory of Cannon.[5] Since attention is being directed to the subject, a more careful analysis of its meaning ought soon to be forthcoming.

THE PREVALENCE OF INTESTINAL PARASITES

The alimentary tract of man may become the habitat of a considerable number of animal species, which, like other organisms, are dependent on certain conditions of environment in order to thrive. For years it was assumed that infestation of the gastro-enteric tract of man with animal parasites is far more common in tropical or semitropical regions than in other parts of the world. This conclusion applied in particular to the intestinal protozoa, which have been charged with considerable responsibility for the proverbially less perfect health of persons in the warm countries. Indeed, it has been remarked that intestinal protozoa and worms may play a part in the general lowering of the tone of health in the tropics.

Hookworms, for example, which are free living in their young stages, are confined to a broad strip around the tropical and warm temperate portions of the world, and occur outside these limits only in short-lived epidemics during the warm parts of the year. Nevertheless, they present a problem for consideration even within the bounds of the United States. The three species of human intestinal flagellates that are best known, *Chilomastix mesnili, Trichomonas hominis* and

1. Du Bois, E. F.: Basal Metabolism in Health and Disease, Philadelphia, Lea and Febiger, 1924.
2. Grafe and Traumann: Ztschr. f. d. ges. Neurol. u. Psychiat. **62**: 237, 1920. Grafe and Mayer: Ibid. **66**: 247, 1923.
3. Ziegler, L. H., and Levine, B. S.: The Influence of Emotional Reactions on Basal Metabolism, Am. J. M. Sc. **169**: 68 (Jan.) 1925.
4. Aub, J. C.: The Relation of the Internal Secretions to Metabolism, J. A. M. A. **78**: 95 (July 5) 1922.
5. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1913.

Giardia lamblia, appear to be cosmopolitan in their distribution, having been found among the inhabitants of every region of the earth where a careful search has been made. Hegner and Taliaferro[1] of Johns Hopkins University question the validity of the general belief in the more exclusively tropical distribution of intestinal protozoa. It is true, they remark, that conditions in the tropics are more favorable for the spread of these organisms than those in temperate countries, and that there is consequently a greater incidence the nearer one approaches the equator; but recent surveys, especially in connection with the examination of soldiers, have shown that the percentage of infestation with intestinal flagellates of persons living in temperate zones is surprisingly high. Surveys in the United States and the British Isles with respect to the occurrence of entozoic amebas seem to justify the conclusion that these parasites are to be found wherever man is.

A recent statistical inquiry regarding the parasitic infestation of man in Paris gives further support to the contentions already advanced. A thousand patients examined in one clinic by Le Noir and Deschiens[2] showed parasites in 59 per cent. of the persons. The nonpathogenic species, such as *Endameba coli, Blastocystis hominis* and *Endolimax nana,* represented a considerable portion of those found. Among the parasites with a somewhat more doubtful claim to freedom from harm to the host, *Chilomastix mesnili* and *Trichomonas intestinalis* occurred in 17 per cent. of the persons. Such findings raise anew the question, often discussed of late, whether intestinal parasitism of the sort indicated may not, after all, be responsible for numerous instances of obscure disorder of the digestive canal. It is readily conceivable that the noxiousness of the invader may depend, in a measure, on the temporary condition of the host. A parasite that may ordinarily be present without any untoward consequences may be assumed at times to excite aggravated reactions when the alimentary defenses are not as effective as usual. Chandler[3] has made the obvious deduction that, in view of the large number of infested persons, the intestinal protozoans must often have little or no pathogenic effect. There is, nevertheless, much individual difference in susceptibility, and different strains of the same parasite seem to vary in the effects they produce. Moreover, Chandler adds, it is highly probable that a great many slight and perhaps almost unnoticed symptoms, resulting in a certain amount of interference with the digestive tract and in a general lowering of the health, may find their ultimate cause in intestinal parasites, either protozoans or worms or both.

1. Hegner, R. W., and Taliaferro, W. H.: Human Protozoology, New York, the Macmillan Company, 1924.
2. Le Noir, P., and Deschiens, R.: Etude statistique concernant les infestations parasitaires du tube digestif à Paris, Arch. d. mal. de l'app. digestif **14**:293 (April) 1924.
3. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922.

Current Comment

HOSPITALS: THE SOLUTION OF SEVERAL MODERN PROBLEMS

In the discussion of hospital problems, much interest has been shown recently in the educational function of such institutions. The hospital is a center for the instruction of nurses, of interns and sometimes of medical students. Another function frequently mentioned is that of investigation and research, whereby the hospital adds its quota to the advancement of our knowledge of medicine. In many places, also, the educational function of hospitals has been broadened to include the provision of special clinics, medical-pathologic conferences and other medical meetings for the staff and for physicians in the surrounding territory. Where competent teachers are available and clinics have been well developed, certain hospitals are now affiliated with graduate medical schools, so that physicians preparing themselves either for general practice or for specialization can obtain portions of their graduate preparations in these hospitals. Finally, also, hospitals are providing instruction for the people in their communities through their patients, their staff, their nurses and social service workers. By these developments of their educational functions, hospitals are now wielding a great influence for good. The lack of hospitals has undoubtedly been a prominent factor in the abandonment of smaller rural communities by physicians, since well-to-do country people have been forced to go to larger towns and cities for hospital care. An increase in the number of modern hospitals, therefore, even though small, will help to bring a wider distribution of physicians. Through the further development of their educational functions, hospitals will enable these physicians to keep in constant touch with the modern developments and improved methods used in the diagnosis, treatment and prevention of disease. Thus the hospitals will help also to bring the benefits of these improved methods within the reach of a larger proportion of the public.

THE HOSPITAL LIBRARY

Elsewhere in this issue we present a suggestive list of books and periodicals for use in a hospital library for members of the resident and attending staffs. It may be well to call attention at the same time to the peculiar material that hospitals assemble and call a library for the patients. Here are deposited last year's best sellers and the subscription sets urged on some philanthropic donor by the glib tongue of the book agent. And if any of the volumes are new, they have been selected with the belief that the sick man or the convalescent woman has a brain that functions only during the periods of health. The inane detective story, the period sex-thriller, the novel rewritten from a movie plot, the collection of short stories, culled from cheap magazines, are likely to constitute the fundamental material of the patients' library, supplemented by the tattered and coverless issues of current maga-

zines prepared for the Babbittry. If an intelligent patient comes to the hospital, he relies for reading matter on what he may bring himself or on what some perspicacious and sympathetic friend may send him. Now here is a suggestion. Let the library of the hospital arrange with the authorities of the local city library and with their own state library commission to supply loan collections of recent material for short periods. As to periodicals, may we modestly suggest a few subscriptions to *Hygeia*. At no time are people so interested in reading about health and the prevention of disease as when they are ill or convalescing. An article on the care of the ears in the current issue of *Hygeia* was given to three patients convalescing from operations for mastoiditis, and they read it with most intense interest. Once started, they read most of the articles in the periodical. If hospitals will start their patients along the proper path to healthful reading material, many of the patients will continue of their own accord.

DYED FUR DERMATITIS

During the last two winters, eighty-six cases of irritation of the skin from dyed furs were seen in the department of dermatology of St. Bartholomew's Hospital, London. In all cases the fur had been worn round the neck, usually as a fur collar on a cloth coat. In some cases, furs were also worn as cuffs at the wrist, but in only one of these had there been an eruption at the wrist. In eighty-four cases, the fur was rabbit dyed brown, commonly called beaver-coney; in one case, goat dyed black; and, in one case, some sort of unknown black fur. The characteristic eruption was a blotchy erythema, with the longer axis of the larger patches often parallel with the lower border of the jaw. The erythema usually progressed to superficial blistering, followed by weeping and crusting. The clinical study by Dr. A. C. Roxburgh [1] led him to the belief that this form of dermatitis is caused by some irritant to which a few persons are naturally sensitive, but that in the great majority of cases a definite incubation period is required for the production of sensitiveness to the irritant. The inflammation of the skin disappears rapidly on removal of the irritant followed by application of protective pastes or creams. It was the opinion of Dr. Roxburgh that greasiness of the skin, perspiration or getting the fur wet does not appear to have any definite relation to the eruption. The Board of Trustees of the American Medical Association has authorized a committee to investigate cases of poisoning by paraphenylendiamin, which, it is believed, is the substance responsible for such eruptions. The committee appointed is now undertaking an investigation of such cases as have occurred in this country, either from furs that have been dyed or from hair dyes of which paraphenylendiamin is the chief component. Physicians who see such cases will aid by sending a report to the committee.[2]

1. Roxburgh, A. C.: Eighty-Six Cases of Dermatitis Due to Dyed Fur, Brit. J. Dermat. & Syph. 37:126 (March) 1925.
2. Address Dr. W. C. Woodward, 535 North Dearborn Street, Chicago.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE, PUBLIC HEALTH AND HOSPITALS

Held in Chicago, March 9, 10, 11 and 12, 1925

(Continued from page 903)

MEDICAL EDUCATION

MARCH 10—MORNING

Results of Improved Medical Education in the Government Medical Services

THE ARMY

DR. MERRITTE W. IRELAND, Washington, D. C.: The efficiency of the medical department of the army is dependent on the medical training of its personnel, which in turn reflects the character of the education afforded by medical schools of the country during any given period. The war with Spain, resulting as it did in the acquisition by the United States of large foreign possessions in the tropics, afforded the medical officers of the army many opportunities, particularly in the field of preventive medicine. The increased activities of the medical department of the army during and subsequent to the Spanish-American War emphasized the great value of modern medical education. Trained medical officers were able successfully to accomplish the sanitation of the Philippine Islands, Cuba, Porto Rico and later of the Panama Canal Zone. By their efforts such diseases as yellow fever, cholera, plague, beriberi and malaria have been greatly reduced in prevalence or eradicated. The application by medical officers of the army of modern medical knowledge made possible the construction of the Panama Canal and rendered the tropical possessions and dependencies of the United States far more healthful for the white man. The mobilization of the World War army required the services of a large number of medical men whose training made them indispensable to the nation in that emergency. Through the efforts of these medical officers, many advances were made in medical knowledge. Among these may be mentioned the reconstruction and reeducation of the disabled, and improved technic in cerebral, maxillofacial, thoracic and orthopedic surgery. Most important, however, was the fact that by the use of modern medical and surgical procedures it was possible to return a very large proportion of the wounded to the combatant ranks and to prevent epidemics which would have depleted the man power of the country. The Army Medical School, which was established in 1893, is an outgrowth of the modern conception of medical education. This institution provides postgraduate instruction for junior medical officers, and is an important factor in the maintenance of a well trained regular army medical corps. The education of the men who constitute the Medical Officers' Reserve Corps and the medical corps of the Regular army is now such that the efficient performance of their duties in the defense of our country is assured.

THE NAVY

DR. EDWARD R. STITT, Washington, D. C.: This paper shows the changes that have taken place in the methods of examining candidates for the medical corps of the United States Navy; the requirements at different periods, and demonstrates the greater worth of present-day methods as compared with those of other days. The earlier medical officers were generally cultured men, but this culture was acquired after entrance into the service by travel and study rather than from their earlier classical studies. Until 1912, questions on classical studies occupied a large place in the examinations. Since then, these have been limited to professional subjects. Written answers are required to questions in medicine, surgery, gynecology and obstetrics, and public health. Practical work in physical diagnosis, laboratory tests and surgical technic is required. The previous record of the candidate is given great weight. Credentials are accepted for premedical studies and the theoretical and

laboratory branches of the fundamental medical sciences. The work of interns commissioned under this system is its justification. An elaborate classical education is of little value to the medical man. Often, in the naval medical school, the man of meager preliminary education came to the front. The establishment of intern service in the naval hospitals has been of immense value to the personnel. Teaching is the best method of learning. A new medical school will soon be started at San Diego, Calif. The value of postgraduate study at the Mayo Clinic and elsewhere has been amply demonstrated. The time is coming when all general practitioners will consider a postgraduate course every three or four years essential.

THE PUBLIC HEALTH SERVICE

Dr. Hugh S. Cumming, Washington, D. C.: Beginning in 1798 with a small nucleus of federal medical officers whose sole function was the medical care of seamen of the merchant marine, the Public Health Service has developed by a process of evolution. As new needs of the federal government for medical and sanitary service developed, they were met by assigning new duties to this service. The progress shown by the Public Health Service in the last twenty-five years is measurable by the increased service to the citizens of the country, and may be thus summarized: The medical care offered to beneficiaries has kept pace with that of the best hospital practice. All the maritime quarantine stations of the country have been brought under the service, and the uniform practice resulting therefrom has benefited commerce while protecting health. By means of its interstate quarantine activities the old border "shotgun" methods have been supplanted by rational and economical procedures. The drinking water supplies on interstate carriers have for the first time been subjected to control. The work of supplying rural America with adequate local health service has received a great impetus and encouragement from the service. The service has fully emerged from the isolation imposed by its earliest organization, and is in helpful contact with official and voluntary health organizations both here and abroad. In the distribution of health information, all legitimate modern means, including broadcasting by radio, have been adopted. The morbidity reports of the service are the only official sources of information for the country concerning the prevalence and distribution of sickness as distinguished from that of deaths. The venereal disease program has led to the establishment of many useful clinics and centers throughout the nation. The interstate traffic in biologic products has been brought under adequate control. Finally, the scientific researches of the service have placed in the hands of health workers in all branches reliable and timely information on which economical and effective control measures could be based.

Coordination in Medical Education

Dr. C. R. Bardeen, Madison, Wis.: This article will appear in full in The Journal.

Correlation Between the Teaching of Laboratory and Clinical Subjects

Dr. O. H. Perry Pepper, Philadelphia: Correlation is the act of bringing into mutual or reciprocal relation, as of parts to a whole. It is correlation that is needed to breathe life into the body of medical education. Saturating the curriculum with correlation will reduce rather than lengthen the medical course, for a fact once properly correlated will not require frequent repetitions and memorizations. How much proper correlation would simplify the medical student's problem can be judged by tracing back through the various courses of the curriculum the steps by which the student gathered some items of information with which he is possessed at graduation; for example, the explanation of why disease of the diaphragm may give pain in the shoulder. Correlation should perhaps ideally occur spontaneously; actually, it must be consciously achieved. Various measures are being tried in different places; the general examination at the end of the four years in one place; the preceptorial system in another. Efforts to interest the laboratory teachers in practical medicine by invitation ward rounds, seminars, etc., are helpful. The clinical staff must also be interested in the preclinical subjects. Clinics to the first and second year classes are valuable but not sufficient. Ideally, the staff of each preclinical subject should include a high grade clinician to point out the practical applications of each topic; and, secondly, each preclinical department should be represented on the hospital staff for the same purpose.

Medical Education in Canada

Dr. Alexander Primrose, Toronto: Standards of medical education are now fairly uniform in all English speaking countries throughout the world. At the University of Toronto, honor matriculation is now made compulsory. Subsequent to matriculation is a course extending over six years. This course includes subjects which in many other universities are called "premedical." The final year (sixth) is purely clinical. This clinical year is infinitely preferable to the "intern year" that has been suggested and tried in other universities. The increased length of the medical course is accounted for by the necessity of an increased amount of teaching of abstract sciences in the preliminary years, and the increased time necessary to apply the methods of the scientific laboratories at the bedside in the final year. The so-called water tight compartment in the teaching of science subjects is to be commended. Uniformity in the curriculum of study is to be condemned.

DISCUSSION ON PAPERS OF DRS. PEPPER AND PRIMROSE

Dr. David L. Edsall, Boston: There are no ways in which teaching has been more interesting to me for the last fifteen or twenty years than in certain efforts at correlation. The most enjoyable teaching that I ever did, perhaps, was teaching the men in the middle of their second year when, with us, they begin their clinical work, something of the relations between physiology and pharmacology and clinical medicine as the first step toward their comprehension of the patient, choosing simply disturbances of function, cyanosis, anemia, and various things of that sort as illustrations of disturbed function, and then fitting to that their knowledge of physiology and pathology and pharmacology. It is extremely interesting to see the way that students, unaccustomed, in large part, to look at things in that way, are perfectly able to tell the facts on either side of the fence, but are not able to get them together; how in the course of a week or ten days most of them begin to brighten up and show an entirely different attitude toward the thing. Courses of this kind sort of laid on to the other course, in a sense, are desirable. They are stimulating and helpful. I differ with Dr. Pepper in some things. In the first place, I have a great deal more confidence in the student than he has. I believe one has to give the student some suggestion; but if one imposes on him the responsibility and does not try to show him everything all the way along the line, one gets very much better results than if one looks on him as being incapable of doing it himself. The other point that I would make is that Dr. Pepper said he did not see how a general examination at the end of the course could accomplish correlation. I have tried for fifteen or twenty years a number of methods of correlation, and I have watched others with a good deal of interest. I still think that these individual methods have value. On the other hand, our faculty has carried out a practical, stabilized and definite form of general examination at the end of the course, and that has done more than anything else I have ever seen in leading the student to correlate his knowledge as he goes along, and the evidence of that comes out in the character of papers and of oral examinations at the end of the course. The reason for that I think is that the student sees always before him the idea that these matters are all related, and it turns his mind to it quite as much as constant suggestion to him in detail. Furthermore, the faculty gets used to the fact that the student must pass a correlating examination. The faculty, therefore, subconsciously correlates more than by any other method we have been able to use in making them do so. The other methods get a few individuals to teach correlation; this method tends to bring pressure on all the members of the faculty and keep correlation in mind all the time. It has another effect, which is a

very useful effect, I think. Carefully studied by an intelligent examining committee, it shows defects in the course both in correlation and in other ways better than any other method I have seen, because it becomes evident in going over a group of all the students. It shows in what ways they are weak in the methods taught them, and it leads to a constant opportunity of bettering things that otherwise would be likely to escape one's attention.

DR. E. STANLEY RYERSON, Toronto: I do not propose to discuss the details of correlation. I introduced that subject two or three years ago, but there is an aspect of this question of medical education which has not as yet been dealt with in the papers. Dr. Edsall referred to the point to which I wish to draw attention, that of the relationship of the student responsibility. During the last two or three years I have been endeavoring to study the subject of medical education from the developments which have been taking place in general education, and the writers on this aspect of development are all of one accord, that the biggest change that has occurred in educational methods in the last twenty-five years is the difference in the relationship between teacher and student. Various systems are being introduced and tried out in which more and more responsibility is being thrown on the pupil, the Montessori system, beginning with the kindergarten, the Dalton system and various others, and in schools of all kinds more and more responsibility and actual work are being thrown on the student. It appears to me that in medical education we have to be ready for these students and not throw them back to the stage at which all the work is being done by the teacher but some of which responsibility is thrown on the student. The superior student, who is one who reaches this position of being able to assume the responsibility at the end of his junior year, is then able to carry on elective work in his final year.

DR. WILLIAM S. CARTER, New York: I have been very much interested in these papers, particularly in the suggestions that have been made by Dr. Pepper. It seems to me that the three methods that he has outlined do not differ so widely. All three tend to the same end. The introduction of the clinics in the first year is, of course, an educational experiment, but the second and third points, the exchange of teachers between the clinical and the laboratory departments, seems to me to be a very important means of bringing these two subjects together. A little more than a year ago I attended a meeting of the faculty of the Peking Union Medical College and heard a discussion of the method which I think was being tried in that institution. The faculty consists of men coming from different institutions and different countries. It is a new institution, not bound by tradition, and therefore open minded and willing to try new methods. They are endeavoring to do away with this sharp line between the first two, or the so-called preclinical years, and the last two or the clinical years, and they have the fifth year as a required intern year. They propose that in the first year they shall give those parts of the laboratory subjects which are absolutely essential to take up the clinical subjects in the second year. They do not attempt to give all of anatomy in the first year. They give the anatomy of the extremities and of the trunk, of the viscera, and so on, and teach histology and embryology. In embryology the obstetrician participates in the teaching in the first year, so that when they come to study obstetrics there is not the needless repetition of embryology that is usually given. In the second year the subjects are taken up by groups. For instance, in studying the infections, the pathologist and the bacteriologist present certain diseases, and then the clinicians and the internists discuss those same subjects. The department of preventive medicine takes part in the study of those diseases at the time. It seems to me that that is carrying out the plan which was suggested in the papers last week in Boston; that is, it is perfusing the idea of preventive medicine through the entire curriculum. Instead of waiting until the men have finished these subjects and then taking up preventive medicine and hygiene and health as a separate subject after the student has heard a lot about them and has very little interest, he gets the whole subject of prevention of those different groups along with the earlier studies in the pathology and bacteriology and of the infections. Similarly other arrangements are made, for instance, in the study of circulatory diseases. The physiologist and the internist work together in studying these diseases in groups. It is really an educational experiment.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

University News.—Edwin O. Jordan, Ph.D., professor of bacteriology, University of Chicago, gave an address on "Botulism and Food Poisoning," recently, at the University of Arizona, Tucson.

State Medical Meeting.—At the annual meeting of the Arizona State Medical Association, Bisbee, April 16-18, there will be a symposium on tuberculosis and chest diseases and there will be seven papers on industrial medicine and surgery. The annual dinner and dance will be at the country club, April 17, and the smoker at Agua Prieta, April 16.

ARKANSAS

Cost of "Patent Medicine."—A bill has been introduced in the senate (Bill 450) which would require that all "patent medicines" be labeled so as to indicate the cost of their production.

CALIFORNIA

Chinese Herbalists and the Law.—*California and Western Medicine* has invited the state board of medical examiners to supply the facts concerning the alleged illegal practice in the state of Chinese herbalists. They will be published in that journal.

Unlicensed Practitioner Arrested.—"Dr." Rose S. Fritz, San Francisco, was recently arrested by Mr. Henderson, a special agent of the state medical board, on a charge of practicing medicine without a license, it is reported. "Dr." Fritz has been arrested on four previous occasions, according to Henderson, and once was fined $300. In her office were surgical and medical equipment, and on the wall diplomas, which Henderson alleged are spurious, from recognized medical schools.

Society News.—Dr. Hyman Miller, Los Angeles, addressed the Fresno County Medical Society, recently, on "Protein Sensitization and Anaphylaxis."——Dr. George B. Worthington has been elected president of the San Diego County Medical Society; Dr. Thomas F. Wier, vice president; Dr. Chester O. Tanner, secretary, and Dr. William O. Weiskotten, treasurer. Dr. Paul B. Magnuson, Chicago, recently gave an illustrated lecture before this society on "Nonsurgical Types of Backache."——Dr. Joseph D. Lewis, Santa Barbara, addressed the Santa Barbara County Medical Society, recently, on "Neoplasms of the Larynx."——Dr. Vaclav H. Podstata, superintendent Livermore Sanitarium, Livermore, addressed the Sonoma County Medical Society recently on "Psychotherapy and General Medicine."

DISTRICT OF COLUMBIA

University News.—The president of Georgetown University announces that Dr. John J. Abel, Johns Hopkins University Medical Department, Baltimore, has been chosen by the Association of American Physicians to be lecturer of the Kober Endowment for 1925 and will speak, March 28, at Gaston Hall on "Some Recent Advances in Our Knowledge of the Ductless Glands."——Georgetown University is planning to establish an Institute of Chemo-Medical Research to be directed by experts in organic, inorganic and physical chemistry, pathology, bacteriology, pharmacology and biochemistry, to whom associates in each line will be assigned. Research fellows and graduate students will be trained for careers in the service of chemomedical research. The funds, estimated

by the American Chemical Society's committee as necessary to carry out this plan are $10,400,000, of which $2,000,000 would be used for buildings, grounds, equipment and library. An appeal for funds has been made.

ILLINOIS

Vaccination Campaign.—Cairo recently conducted a vaccination campaign against smallpox, in which out of 1,900 school children only fourteen remained unvaccinated when the campaign closed.

Society News.—Dr. Porter P. Vinson, Rochester, Minn., addressed the Rock Island Medical Society, March 10, on "The Diseases of the Esophagus," and Dr. Jacob R. Buchbinder, Chicago, on "Surgical Consideration of the Dyspepsias."

Personal.—Dr. Irwin W. Bach, formerly of Tuscola, has been appointed physician to the Cunningham Home, Urbana, to succeed Dr. William M. Honn, resigned.——Dr. Myron W. Snell, Jacksonville, has been elected vice president and medical director of the American Bankers-Clover Leaf merger insurance companies.

Chicago

Society News.—The Institute of Medicine of Chicago gave its first Ludvig Hektoen Lecture of the Billings Foundation at the City Club, March 27. Drs. George F. and Gladys R. H. Dick lectured on scarlet fever.——Dr. William W. Wasson, Denver, addressed the Chicago Medical Society, March 25, on "Radiographic Studies of the Infant Chest."

INDIANA

Physician Arrested.—Dr. Robert W. Claypool, Mellott, was arrested, March 10, it is reported, on a charge of performing an illegal operation. Dr. Claypool was held under $5,000 bond.

Society Organized.—Physicians of New Albany and vicinity organized the New Albany Academy of Medicine and elected Dr. Dudley F. Davis president for the ensuing year; Dr. Amzi Weaver, vice president; Dr. Clarence E. Briscoe, secretary, and Dr. Charles P. Leuthart, treasurer.

KANSAS

Personal.—Dr. J. Carroll Montgomery, for five years director of the Cherokee County health unit, has been appointed state director of the Division of Rural Sanitation in the government health service with headquarters at Topeka, and will be succeeded in Cherokee County by Dr. Leonard S. Steadman, Junction City, who, for the last two years, has been in charge of the Sheridan County health bureau.

KENTUCKY

Physician Arrested.—Dr. Fred L. Wilhoit, Louisville, was arrested, March 10, it is reported, on a charge of violating the Harrison Narcotic Law. Dr. Wilhoit pleaded not guilty and was held to the October grand jury in $1,000 bond.

LOUISIANA

Prescription Liquor Forbidden.—An ordinance was adopted, March 10, in Tangipahoa Parish, making it illegal for drug stores to sell liquor on physicians' prescriptions. A similar ordinance was recently passed in Claiborne Parish. There is a state law authorizing police juries, which are the law making bodies of the parishes, to adopt such ordinances.

Dr. Parham Honored.—About 150 physicians held a surprise party at the Charity Hospital, New Orleans, March 20, to celebrate the sixty-ninth birthday of Dr. Frederick W. Parham, on which occasion a portrait of Dr. Parham was presented to the administrative board of the hospital. Dr. Edmund D. Martin presented the portrait, which was accepted by the president of the board. Short addresses were made by Drs. George S. Bel, Ernest S. Lewis and Erasmus D. Fenner.

MARYLAND

Veterans' Bureau Diagnostic Clinic.—The services of a large number of physicians of Baltimore and Washington have been enlisted by the U. S. Veterans' Bureau for the diagnostic clinic, to be established at Mount Alto, the Veterans' Bureau hospital located just within the District of Columbia. The Baltimore physicians selected are: Dr. Lewellys F. Barker, Dr. Thomas B. Futcher, Dr. Thomas R. Brown, Dr. William S. Thayer, Dr. Louis V. Hamman, Dr. Gordon Wilson, Dr. Samuel J. Crowe, Dr. Adolf Meyer, Dr. Walter A. Baetjer, Dr. Allen K. Krause, Dr. John M. T. Finney, Dr. Richard H. Follis, Dr. Walter E. Dandy, Dr. William S. Baer and Dr. Hugh H. Young.

Society News.—Dr. Frankwood E. Williams, medical director, National Committee for Mental Hygiene, spoke at the School of Hygiene and Public Health, Johns Hopkins University, March 16, on "The Place of Mental Hygiene in a Program of Public Health."——At the Book and Journal Club of the Medical and Chirurgical Faculty, March 19, Dr. Samuel T. Earle, Jr., spoke on "Passed-Assistant Surgeon, U. S. N., James M. Ambler, M.D., and the Jeannette Arctic Expedition," and Dr. William T. Howard, Jr., on "The History of Vaccination in America." Dr. William H. Welch opened the discussion.——At a meeting of the West Baltimore Medical Society, March 19, the following officers were elected: Dr. Arthur G. Barrett, president; Drs. James Dawson Reeder, Robert P. Bay, John F. Hogan and Martin F. Sloan, vice presidents; Dr. Gustav Goldman, recording secretary; Dr. Arthur C. Tiemeyer, corresponding secretary; Dr. Leonard A. Richardson, treasurer. Dr. Lewellys F. Barker was made honorary president of the society.

Personal.—At the meeting of the Baltimore City Medical Society, March 20, Dr. Veader N. Leonard, chairman, Committee on Internal Antiseptics, National Research Council, explained the action of hexylresorcinol.——Dr. Samuel T. Darling sailed, March 21, from New York for Europe to become director of an expedition that will study the malaria situation in countries about the Mediterranean, under the auspices of the Rockefeller Foundation. The countries to be visited are Switzerland, Italy, Greece, Palestine, Egypt and Morocco. Dr. Darling will complete this work by July 1 and will then go to England to address a meeting of the Royal Society of Tropical Medicine at Oxford University.——Dr. Thomas S. Cullen, professor of clinical gynecology, Johns Hopkins University Medical Department, addressed the executive and associate staffs of St. Agnes Hospital recently.——Dr. Rudolf B. Teusler, medical missionary to Japan, was guest of honor at a dinner given at the Maryland Club, Baltimore, March 16, by Dr. Howard A. Kelly. Dr. Teusler is visiting the United States in the interest of his hospital at Tokio, which was destroyed by the earthquake.——Dr. Daniel W. Cathell, president, Baltimore Eastern Dispensary, was given an informal dinner by the dispensary board recently in recognition of his long service, having served as director, then as vice president and for the last twenty years as president.

MASSACHUSETTS

Medical Director Appointed.—Dr. Henry B. Elkind has been appointed medical director of the Massachusetts Society for Mental Hygiene, Boston, to succeed Dr. George K. Pratt, resigned. Dr. Elkind graduated from Tufts College Medical School in 1915. He was an assistant at the State Hospital for Mental Diseases at Howard, R. I., and for the last year and a half specialized in mental hygiene in industry at the Harvard University School of Public Health.

MICHIGAN

Society News.—A special meeting of the Detroit Roentgen Ray and Radium Society was held, March 26, at which Dr. Russell D. Carman, Rochester, Minn., spoke on the "Roentgenologic Diagnosis of Ulcer of the Stomach"; Dr. Clyde Emerson Vreeland, Detroit, "Diagnosis of Peptic Ulcer from the Internist's Standpoint," and Dr. Frederick A. Coller, "Diagnosis of Peptic Ulcer from the Surgeon's Standpoint."

MINNESOTA

House Passes Sterilization Bill.—A bill providing for the sterilization of feeble-minded and insane persons on request of their guardians or nearby kin, when such persons have been lawfully committed to the guardianship of the state, was passed by the house, March 4. A similar bill is before the senate.

Society News.—A symposium on the stomach was given before the Hennepin County Medical Society, Minneapolis, March 2, Dr. Otto W. Yoerg speaking on "Differential Diagnosis of Stomach Conditions in the Acute Abdomen"; Dr. Willard D. White on "Treatment of Chronic Stomach Conditions," and Dr. James M. Hayes on "Indications and Technic for Surgical Procedures in Stomach Surgery."——

Mr. Benjamin C. Gruenberg, New York, addressed the Hennepin County Medical Society, Minneapolis, March 18, on "The Physician and the American Association for Medical Progress" and Dr. Archa E. Wilcox on "Surgery of the Spleen."——Dr. Palmer Findley, Omaha, president, Nebraska State Medical Association, addressed the Professional Men's Club, Minneapolis, March 19, on "Medical Education."—— The bill before the legislature to reduce the statute of limitations from six to two years has passed the committees of both houses. The Hennepin County Medical Society, among others, is urging its members to write to senators and representatives with whom they have influence, urging them to vote for the bill.

MISSISSIPPI

Personal.—Dr. William M. Murry, Ripley, has been appointed county health officer to succeed Dr. Robert M. Adams, who has been appointed full-time health officer for Lee County.

MISSOURI

Personal.—Dr. William J. Hawes, Kansas City, was appointed city physician by the hospital and health board, February 23, to succeed Dr. John L. Lavan, resigned.

Society News.—Dr. Ralph H. Major addressed the Jackson County Medical Society, Kansas City, March 24, on "Observations on Diabetes Mellitus," Dr. Herman E. Pearse on "Traumatic Rupture of the Spleen," and on March 17, Dr. Paul F. Stookey on "Syphilis of the Liver," and Homer O. Leonard on "Confidence in the Medical Man of Today." The president's banquet will be held, April 7, at the Bellerive Hotel, and the speaker will be Dr. William Engelbach, St. Louis, who will speak on "Studies in Hair Growth and Pigmentation." The guests of honor will be those members who have been in the practice of medicine for fifty years or more.

Dr. Waldo Briggs' License Revoked.—The Missouri State Board of Health, having found Dr. Waldo Briggs, dean of the St. Louis College of Physicians and Surgeons, guilty of assisting in the preparation and sale of fraudulent credentials and medical diplomas, revoked his license to practice medicine and surgery in Missouri, March 20. Briggs' license is revoked until such time as he shall either permanently close the St. Louis College of Physicians and Surgeons, or reorganize that school as a reputable medical college. Among others who testified at the hearing, Paul B. Kaesser said that he purchased his credentials to enter the St. Louis College of Physicians and Surgeons from William P. Sachs for $75, and that he was sent to Sachs by Briggs. Andrew Draser, Ventura, Calif., a Hungarian immigrant, testified that he was made a doctor of medicine in four months by Dr. Frank P. Young of the defunct Pacific Medical College, Los Angeles. Dr. Robert Adcox and Dr. Waldo Briggs. Young, Briggs, Adcox and others are now under indictment in San Francisco in connection with the Pacific coast operations of the diploma mill. Draser, a so-called graduate of the St. Louis College of Physicians and Surgeons, testified that he went to Adcox with a letter of introduction from Young, and a diploma which he had purchased from the Pacific Medical College. Adcox told him that he had to have a high school certificate also, and Draser gave Adcox $100 to get it. Adcox then took Draser to see Briggs, giving Briggs the Pacific Medical College diploma, and later the high school certificate, which he obtained from Adcox. Briggs told Draser the certificate was no good and to have Adcox get him another. Adcox then got an Indiana certificate for Draser, charging him an additional $40. This certificate Briggs accepted.

NEW JERSEY

Smallpox Record.—The state department of health reports that there were 340 cases of smallpox in the state in 1924, the highest number of cases in the last fifteen years, the period for which reliable statistics are available. There were only thirty cases in 1923 and eighteen in 1922. The 340 cases of last year were distributed among fourteen of the twenty-one counties in the state, and there were seven distinct outbreaks. More cases occurred in Camden County than in any other.

Society News.—At the recent annual dinner of the Hudson County Medical Society, Hoboken, the principal speaker was Henry C. Kaltenborn, associate editor of the Brooklyn *Eagle*. Among others who spoke was Dr. William Seaman Bainbridge, New York. The president of the state medical association, the secretary and the editor of the state medical journal were present.——Dr. William E. Caldwell, New York, addressed the Passaic County Medical Society, Paterson, February 12, on "Pathologic Findings in Still Births and Neonatal Deaths, and Suggestions for Improving These Conditions."

NEW YORK

Personal.—Dr. John C. Dingman, for seven years health officer of Spring Valley, has resigned from that position, effective March 31.——Dr. Jonathan Pearson, director, division of tuberculosis, state department of health, has resigned in order to enter private practice.

Hospital News.—The board of directors of the Geneva City Hospital recently changed that name to Geneva General Hospital, chiefly because the city neither controls nor contributes to the hospital. Dr. Sterling B. Ragsdale, formerly of Greenwich, Conn., is superintendent.——The board of trustees of the Memorial Hospital of Albany has decided to appeal to the public for aid in further development and maintenance of the institution. A campaign will be started at the end of March to raise $300,000.

Johns Hopkins Alumni.—At the annual dinner of the New York Alumni Association of Johns Hopkins University, Biltmore Hotel, March 13, Dr. Frank J. Goodnow, president of Johns Hopkins, said it was expected that the eye clinic to be established on the Wilmer Foundation will be opened in October. A campaign to raise $11,000,000 for the university is being inaugurated. Dr. Rufus Cole was elected president of the organization for the year. Dr. John H. Finley and Michael I. Pupin of Columbia University spoke.

Society Objects to Narcotic Agent's Tactics.—The Erie County Medical Society at its regular monthly meeting, March 16, Buffalo, voted unanimously to support Dr. Albert J. Harris, who was recently arrested by federal agents on a charge of violating the Harrison Narcotic Law. A committee was appointed comprising Drs. Charles W. Bethune, Lawrence Hendee and Carlton E. Wertz to aid in preventing the use of tactics such as are alleged to have been used in bringing about the arrest of Dr. Harris. Dr. Harris was arraigned before the federal commissioner, March 16, and held for hearing in $5,000 bail.

Statement of Dr. Nicoll.—Dr. Matthias Nicoll, Jr., state commissioner of health, has issued a statement regarding his attitude toward various bills designed to amend the medical practice act and to legalize certain cults.—A resolution censoring Dr. Nicoll for his attitude, at the recent legislative hearing in Albany, toward certain cults was introduced in the New York County Medical Society meeting, March 12, and tabled on the ground that it was not in order on account of the absence of Dr. Nicoll. The association endorsed by a vote of 251 to 11 the Karle-Dunmore bill, now before the legislature, which, among other things, provides for the annual reregistration of physicians.

New York City

Welfare Council Proposed.—At the annual dinner of *Better Times*, April 2, the organization of a welfare council for New York will be proposed. Representatives of every charitable organization and social agency in the metropolitan district are urged to attend.

Medical Association of Greater New York.—This organization at its recent annual meeting, at the New York Academy of Medicine, elected Dr. Louis Faugeres Bishop, president; Dr. Thomas C. Chalmers, vice president, and Dr. Ernest Ellsworth Smith, recording secretary.

Shortage of Physicians.—According to Dr. John E. Jennings, president, Kings County Medical Society, there is a dearth of general practitioners not only in the rural sections but in Brooklyn, which has a population greater than Manhattan, but had only 2,631 physicians while Manhattan has 5,556.

The Tuberculosis Clinics.—The statistician of the Association of Tuberculosis Clinics of Greater New York has submitted a report showing that on March 1 there were under treatment 11,772 patients. Of these, 3,613 were tuberculous and the remainder suspects or contacts. The total attendance at the clinics in 1924 was 112,679.

University to Take Out Patents.—Columbia University will hereafter take over patents arising from discoveries made in its own laboratories. This policy, according to *Science*, is a departure in the university's administrative system which will protect the inventor and the public, and enable

the university to share in the profits and thus to promote research. An administrative board of university patents has been established.

Lectures at Health Center.—At the East Harlem Health Center, 345 East One Hundred and Sixteenth Street, there will be every Wednesday at 4 p. m., from February 18 to May 20, a lecture on community health conservation and disease prevention. Dr. Iago Galdston, of the New York Tuberculosis Association, will supervise the lectures, under the auspices of that organization and the public health committee of the New York Academy of Medicine.

Hospital News.—Ground will be broken, April 2, for the new Knickerbocker Hospital on Washington Heights. The plans call for three large buildings, but only one will be erected at present. The present hospital was erected in 1875. ——When the new Beth Israel Hospital at Livingston Place is completed, a tablet will be placed in the auditorium on which will be the names of 1,000 who gave $1,000 each to the building fund.——More than 95,000 people were patients at the dispensary of the New York University and Bellevue Hospital Medical College during 1924, according to Dr. William J. Pulley, chief of the dispensary. The number of patients has increased from 66,368, in 1918, to the present figure. The staff has been increased from eight members to more than thirty.——The Rockefeller Institute for Medical Research is to erect a two story isolation building, which will cost $125,000.

Cooperative Course in Mental Hygiene.—A course of fourteen lectures is being given by the Academy of Medicine each Friday under the auspices of the National Committee for Mental Hygiene and the New York Neurological Institute for members and outsiders who wish to devote their time to social service. These lectures are open to professional and volunteer social workers, nurses, church workers, charity committees, medical and theologic students and teachers. In order to stress the dependence of effective social service work on the knowledge of the mental state of those who are looked after, sixty of New York's largest public welfare, benevolent, educational and social research organizations joined to provide an authoritative course in mental hygiene. Dr. Frankwood E. Williams states that at the present time there are more than 80,000 persons in New York who, in one form or another, depend on charity, and that a large number of these are dependent because of social maladjustment, which is the result of nervous or mental disorders. The subjects of these lectures include the study of the structure of the brain, the study of glands, personality, child behavior, feeblemindedness, organic changes in brain diseases and the future of mental hygiene and opportunities in its field. The lecturers are Dr. Frankwood E. Williams, Dr. Sanger Brown II, Dr. Bernard Glueck, Dr. Sylvester R. Leahy, Dr. Foster Kennedy, Dr. Frederick Tilney, Dr. Walter Timme, Dr. Edwin G. Zabriskie and Dr. Thomas W. Salmon.

Society News.—In a symposium on typhoid fever at the New York Academy of Medicine, March 5, Dr. Louis I. Harris spoke on "Features of Public Health Interest in Relation to the Recent Typhoid Fever Outbreak"; Dr. Charles Krumwiede on "Points of Interest to the Practicing Physician in Methods of Fecal Examination for Bacillus Typhosus," and Dr. Warren Coleman on "Clinical Observations During the Recent Outbreak of Typhoid Fever."——At the stated meeting of the New York Academy of Medicine, March 19, arranged in cooperation with the section of ophthalmology, a symposium on headache was given, comprising addresses by Dr. George E. de Schweinitz, Philadelphia, on "Ocular Headaches"; Dr. Ross H. Skillern, Philadelphia, on "Headache of Nasal Origin"; Dr. Foster Kennedy, New York, on "Headache from the Viewpoint of the Neurologist," and Dr. Ludwig W. Kast, New York, on "Headache from the Viewpoint of the Internist." The discussion was opened by Drs. Alexander Lambert and Edgar S. Thompson.——Elmer V. McCollum, Ph.D., Johns Hopkins University School of Hygiene and Public Health, Baltimore, lectured, March 16, at the American Museum of Natural History under the auspices of New York Academy of Sciences on "The Application of Laboratory Studies in Nutrition to Human Progress."—— At the annual meeting of the New York Electrotherapeutic Society, March 4, Dr. Norman E. Titus was elected president; Dr. Harry E. Stewart, vice president, and Dr. Richard Kovacs, secretary (reelected).——The Russian Medical Society of New York was incorporated in 1925 to promote the mutual welfare of its members, to help in securing positions for those in need of employment and to cooperate for the general advancement of medicine. Dr. Sergius Ingerman is president of the society, and Dr. Isaac Astrachan, 418 Central Park West, is secretary.

NORTH CAROLINA

Lobbies.—Dr. James C. Braswell, member of the house in the legislative session just closed, stated in a closing address that he "had never seen so active a lobby at any previous session. It has become a disgrace to the state extending even to heads of departments."

Haywood County Memorial Hospital.—The commissioners of Haywood County have authorized an election in June on a $100,000 bond issue proposition for the construction of a new county hospital as a memorial to the soldiers of the World War from that county. A site of some acres in a grove of fine oaks, the old home site of Dr. Samuel L. Love, for many years a practitioner and state auditor (1876-1880) is under consideration.

Information Wanted.—A man who gave the name of "Dr. L. J. Miller" of Charlotte recently recommended to R. A. Callahan, Forest City, an "eye specialist" by the name of "Dr. Butler," with the understanding that the charge for treatment would be about $7. Butler, claiming that he used radium in the treatment of Mr. Callahan's eyes, charged $675, and the patient took out a warrant for his arrest. Information concerning the whereabouts of these persons is wanted in Forest City.

OHIO

Bovine Tuberculosis Indemnities.—A bill has been introduced in the state legislature which would provide $1,000,000 to pay for cattle condemned because of bovine tuberculosis. About 23,000 head of cattle in Ohio have been tested for tuberculosis, and 5 per cent. have reacted positively. The work of testing cattle is under way in eighteen counties.

Physicians in Court.—It is reported that Dr. Henry F. Fledderjohann, New Knoxville, recently was given a hearing in the Toledo federal court on a charge of violating the Harrison Narcotic Law which dates back two years, at which time Dr. Fledderjohann gave bond and later failed to respond to notices to appear in court.——Dr. Samuel J. Derbyshire, Lima, who was arrested two years ago on a charge of violating the Harrison Narcotic Law and gave bond, was also brought into court.

Health Agency Reorganized.—Dr. Erwin A. Peterson, director of the Cuyahoga County Public Health Association, has announced his retirement from that association. Reorganized under the name of Health Promotion Council, comprising public health agencies supported by the Community Fund, the association will function with a board of directors elected by these agencies. Dr. Roger G. Perkins, professor of hygiene and preventive medicine, Western Reserve University Medical School, Cleveland, has been named chairman of the new council.

OKLAHOMA

Hospital News.—The Bryan County Hospital has let the contract for the erection of an addition which will contain eight rooms. A steam heating plant will also be installed.—— After a lapse of six years, the Sisters of the Sorrowful Mother have begun the completion of St. John's Hospital, Tulsa. Its capacity will be 300 beds.——John S. Alcorn has subscribed $175,000 for a new building for the Ponca City Hospital and is chairman of a committee which is raising $250,000 for this purpose.

PENNSYLVANIA

Postgraduate Course for General Practitioners.—The School of Medicine, University of Pittsburgh, will give a two weeks' postgraduate course devoted to the interests of the general practitioner, beginning June 1, and a third week of laboratory instruction in simple methods to those interested. Considerable time will be devoted this year to the study of diseases of the cardiovascular system. An outline of the course will be mailed on request.

Society News.—Dr. Budd C. Corbus, Chicago, delivered the postgraduate lecture before the Allegheny County Medical Society, Pittsburgh, March 19, on "Diathermy in the Treatment of Cancer."——The sixteenth anniversary dinner of the Allegheny County Medical Society will be held, April 14, in the Hotel Schenley ballroom.——Dr. Evarts A. Graham, Bixby professor of surgery, Washington University School of Medicine, St. Louis, delivered the Stewart Memorial

lecture before the Pittsburgh Academy of Medicine, March 24.——The Philadelphia Electrotherapeutic Association has been organized. Only members of a county or state medical society are eligible for membership. Dr. William T. Johnson was elected president and Dr. Ralph E. Getelman, secretary.

University Plans.—The University of Pennsylvania, Philadelphia, is planning improvements in medical education and research which will involve the expenditure of $13,700,000 before 1940 (the two hundredth anniversary of the university). The medical development will include $7,900,000 devoted to endowment and $5,800,000 to buildings and equipment. The most urgent medical needs are a new anatomy and biochemistry laboratory and $800,000 endowment for the development of anatomy. The new laboratory will replace the Hare Laboratory, which is obsolete and inadequate. The Rockefeller Foundation and General Education board have made a joint offer of $250,000 each on condition that the university provides $500,000. The second medical undertaking will be to raise $2,000,000 endowment for the school of medicine to increase salaries and to enlarge the teaching staff. The graduate school's endowment will be increased by $1,000,000, a new hospital erected costing $2,000,000, and a nurses' home and a new wing to the University Hospital costing $1,000,000. It is planned to increase the endowment for the department of research medicine—the first in this country—by $1,000,000. The Phipps Institute needs $1,500,000 for research work in tuberculosis and $300,000 to increase the salaries of its staff; the School of Hygiene and Public Health needs $500,000.

Philadelphia

Undergraduate Medical Association.—At the meeting of this association of the University of Pennsylvania School of Medicine, April 3, Dr. John B. Deaver, emeritus professor of surgery, will speak on "Surgical Experience and Surgical Wisdom," Dr. Lewellys F. Barker, emeritus professor of medicine, Johns Hopkins University Medical School, Baltimore, on "Opportunities for Medical Research." Student papers on medical and surgical research problems will be presented also.

Society News.—Dr. Charles L. Gibson, New York, addressed the Philadelphia County Medical Society, March 25, on "Pneumococcus Peritonitis," Dr. William Wayne Babcock on "Factors in the Management of Peritonitis," and Lieut. Com. Joseph A. MacMullen, U. S. Navy, on "Conservative Treatment of Peritonitis."——Dr. John Eiman addressed the Pathological Society of Philadelphia, March 19, on "Melanomata Arising from Congenital Naevi of the Skin and Pia-Arachnoid," and Dr. Ralph Pemberton, Florain A. Cajori, Ph.D., and Miss C. Y. Crouter on "Observations on the Physiology of Synovial Fluid."

SOUTH CAROLINA

Personal.—Clarence E. Smith, D.V.S., for nearly eighteen years health commissioner of Greenville, has resigned, it is reported, and accepted a position with the U. S. Public Health Service. The entire board of health of Greenville is reported to have resigned also following a reduction in the appropriation for the city health commissioner's salary, by the city council.

TENNESSEE

Governor Signs Evolution Bill.—Governor Peay, March 23, signed the bill recently passed by the general assembly which forbids the teaching of evolution in the public schools, normal schools and colleges of the state.

Quarter Century Club.—The annual meeting of the Quarter Century Club, Chattanooga (the members are physicians who have practiced twenty-five years or more), was held, March 3. Dr. Joseph W. Johnson was elected president to succeed Dr. Edward B. Wise; Dr. Buchanan S. Wert, vice president, to succeed Dr. Frederick B. Stapp, and Dr. Frank T. Smith was reelected secretary. Dr. Wise presided at the banquet.

TEXAS

Dr. Dysart's Conviction Upheld.—In an opinion handed down, March 11, in the fifth U. S. Circuit Court of Appeals, New Orleans, the conviction of Dr. John C. Dysart, El Paso, on a federal indictment charging the misuse of the mails in connection with the operation of the Queen Anne Home was upheld. Dysart was found guilty in January, 1924, it is reported, and was sentenced to five years imprisonment, a $2,500 fine, and the loss of civil rights.

VERMONT

Maternity and Infancy Act.—The Vermont legislature voted the last week in February to accept the provisions of the federal maternity and infancy act, bringing the total of states cooperating with the federal government under this act to forty-two.

WEST VIRGINIA

"Dr." Ross Arrested.—Following the death of Mrs. Holderman, "Dr." Alexander Ross, South Wheeling, was arrested on a charge of practicing medicine without a license. He had treated Mrs. Holderman for rheumatism, administering "electric treatments." The necropsy disclosed that the patient had heart disease. Ross contended that "electric treatments" could not be construed as the practice of medicine. He is under $1,000 bond.

WISCONSIN

Society Invites City Council.—The Kenosha County Medical Society recently extended an invitation to the members of the city council of Kenosha to meet with the society.——The Milwaukee Medical Society sent about twenty of its members to Madison recently to inspect the new Wisconsin General Hospital for the treatment of crippled children.

Personal.—Governor Blaine recently announced the appointment of Dr. Adolph Gunderson, La Crosse, to the board of regents of the state university, and of Dr. Joseph Dean, Madison, to the state board of health, succeeding Dr. Gilbert E. Seaman, Milwaukee, and Dr. William F. Whyte, Watertown, respectively.——Dr. Otho A. Fiedler, Sheboygan, has been elected president of the state board of health, to succeed Dr. William F. Whyte, Watertown, who has been president of the board for the last twenty years.——Dr. Edward L. Miloslavich, professor and head of the department of pathology and bacteriology, Marquette University School of Medicine, Milwaukee, addressed the Sheboygan County Medical Society, March 3, on "Chronic Appendix from the Pathologic Viewpoint."

CANADA

Medical Association Syndicates Articles.—The publicity committee of the Canadian Medical Association recently has undertaken to syndicate popular articles dealing with health. Thus far the list of subjects includes "Bacteria," "How Can We Keep Health," "Give Your Body a Square Deal," "Influenza," "Measles," "Waste," "Pure Air" and others.

School for Public Health Nurses.—Montreal University has leased from the Catholic National Syndicate two stories of the building at Demontigny and Beaudry streets, Quebec, where it will open a course in training for public health nurses. The city of Quebec will appropriate $5,000 annually towards the school, and the province will contribute. All city staff nurses will be trained by the school free of charge. The course is postgraduate.

Christian Science Practitioner Guilty of Manslaughter.—According to the Detroit *News*, William Elder, Christian science practitioner, Winnipeg, was found guilty of manslaughter, March 14, in connection with the death of a 12 year old girl who died of diphtheria, Nov. 22, 1924. David S. Ropp, another Christian science practitioner, is also accused of manslaughter; his trial will come next and be followed by that of the father of the girl, who, it is alleged, refused to permit physicians to administer antitoxin.

GENERAL

Red Cross Publications.—The *Red Cross Courier*, which has been published weekly, was changed, with the issue of January 1, to a semimonthly publication. The Red Cross announces a new publication for high school students called the *High School Review*. These magazines, together with the *Junior News*, provide material for primary, secondary and adult use.

Society News.—The next meeting of the American Electrotherapeutic Association will be at Chicago, September 15-17, instead of at Niagara Falls, as originally announced.——The American Society of Clinical Pathologists will meet in Philadelphia, May 21-23, at the Benjamin Franklin Hotel. The commercial exhibit, a new feature in charge of Dr. Louis A. Duck, St. Louis, will comprise thirty-two spaces.

Dr. Walsh Appointed Secretary.—Dr. William H. Walsh, Philadelphia, has been appointed executive secretary of the

American Hospital Association, to succeed the late Dr. Andrew R. Warner. Dr. Walsh was executive secretary of the association from 1916 to 1918, when he resigned to take part in the World War. His hospital administrative experience includes service with the Philadelphia Hospital for Contagious Diseases, Philadelphia General Hospital and the Philadelphia Children's Hospital.

Prevention of Delinquency.—The Joint Committee on Methods of Preventing Delinquency has for some time been compiling information about psychiatric clinics where service is given to problem children. A directory of these clinics will shortly be published for distribution. Canada is included. Any clinic directors who have not yet reported may address Graham R. Taylor, executive director, Joint Committee on Methods of Preventing Delinquency, 50 East Forty-Second Street, New York City.——Since Dec. 1, 1924, the consultant service of the committee has been organizing the work of a psychiatric clinic in Richmond, Va., which will be operated as a department of the Children's Memorial Clinic. Dr. George H. Preston, a graduate of Johns Hopkins University Medical Department, has been appointed director of the clinic.

Tetanus in Bunion Pads.—The U. S. Public Health Service has issued a warning against the use of bunion pads for shields or dressings in vaccination against smallpox. Several fatal cases of tetanus following the use of bunion pads in this manner have recently occurred in the United States, and the Hygienic Laboratory has demonstrated the presence of the tetanus bacillus in bunion pads which come from the same source as those associated with the fatal tetanus cases. The Public Health Service deprecates the use of any kind of shield as a vaccination dressing. A shield tends to prevent evaporation, to retain heat, moisture or discharges, to obstruct lymphatic drainage, to produce hyperemia and to create conditions apparently favorable for the development of bacterial invasion, especially by the tetanus organism. The smallest insertion compatible with a successful take and with no dressing whatever is one of the best methods of vaccination in the majority of cases.

Bequests and Donations.—The following bequests and donations have been announced recently:

St. Luke's Hospital, New York, $5,000, and the Loomis Sanatorium in Sullivan County, New York, $1,000, under the will of the late Elizabeth Remers.

Trudeau Sanatorium, Saranac Lake, N. Y., $25,000, and the following amounts to hospitals about New York City, by the will of the late Edmund Penfold: Lincoln Hospital, $10,000; St. Mary's Free Hospital for Children, $16,000, and one sixth of the residue; Presbyterian Hospital, $15,000; New York Orthopedic Dispensary and Hospital, $5,000; St. Luke's Hospital, $10,000; Women's Hospital, $5,000; New York Eye and Ear Infirmary, $10,000; Home for Incurables, $5,000, and the Hospital and House of Rest for Consumptives, $10,000.

Montefiore Home for Chronic Invalids, New York, $2,500; Mount Sinai Hospital, New York, $1,000; Hebrew Orphan Asylum, New York; Hebrew Infant Asylum, New York; Home for Aged and Infirm Hebrews, New York; National Jewish Hospital of Consumptives, Denver, and Sanitarium for Hebrew Children, New York, each $500, under the will of the late Ida Semel.

Thirty thousand dollars to the Mount Sinai Hospital School for Nursing, New York, by Mrs. George Blumenthal.

Peabody Home for Aged and Indigent Women, New York, $5,000, and Flower Hospital, $5,000, to endow a bed in memory of her mother, by the will of Lilla K. Warren.

Jane Lamb Memorial Hospital, Clinton, Iowa, $3,000, by the will of the late Mrs. Frances Coan Hayes.

United Hospital Fund, New York, $500,000; Greenwich (Conn.) Hospital and the New York Association for Improving the Condition of the Poor, each $1,000; New York Dispensary, $25,000; Social Service Department of the Metropolitan Hospital, New York, $25,000, by the will of the late E. C. Converse.

One thousand dollars each to the Howard Hospital, Philadelphia, and the Children's Seashore Home, Atlantic City, N. J., by the will of the late Alice T. Getze.

Five thousand dollars each to the New York Skin and Cancer Hospital, New York; St. Christopher's Hospital for Babies, Brooklyn; the Brooklyn Hospital and the Jewish Hospital of Brooklyn, by the will of William D. Hoxie.

The New York Hospital, $10,000, and the New York Foundling Hospital, $5,000, under the will of the late William P. Wainwright.

Boston University, $100,000, by an anonymous donor.

The Hospital for Joint Diseases, New York, $75,000, by Frederick Brown, one of the directors, to aid in defraying the indebtedness of the institution.

Home for Aged and Infirm Hebrews, New York, and St. Francis Hospital, each, $2,000; Society for the Relief of Ruptured and Crippled, New York, $3,000, by the will of Louis T. Lehmeyer.

Perry Memorial Hospital, Princeton, Ill., $15,000, by the will of the late Mrs. Mildred E. Martin.

Lebanon Hospital, $3,000, and the Convalescent Home for Hebrew Children and Mount Sinai Hospital, each, $1,000.

St. Vincent Hospital, $1,000, by the will of Joseph I. C. Clarke.

Mount Sinai Hospital and Institution for the Improved Instruction of Deaf-Mutes, $1,000, each, and Montefiore Hospital, New York City, $500, by Sigmund M. Sciele.

Five thousand dollars to the City Hospital, Brunswick, Ga., by the late Major C. Downing, Brunswick.

LATIN AMERICA

Home for Cuban Students at Paris.—A large committee has been organized in Cuba to plan ways and means for the "Casa de Cuba"—a home for Cuban students at Paris. Argentina already has one and Belgium and Canada theirs under construction.

Personal.—Dr. Alvaro Alvim, one of the first to introduce medical electricity into Brazil, has lost both hands and one arm from progressive radiodermatitis. The Brazilian parliament had a special medal struck for him and authorized the state to purchase his radio institute. The latter has not been done as yet. The medical profession organized a testimonial meeting in his honor recently.

FOREIGN

State Serum Institute.—Since the death of its founder, the late Professor Paltauf, the direction of the Staatliches Serotherapeutisches Institut, Vienna, has passed into the hands of his pupils, Profs. R. Kraus and E. Pribram. The control of the products will be in the hands of a control station established by the public health bureau.

Funds Collected on Pasteur Day.—From the 9,000,000 francs collected from the public on Pasteur's Day, the French Academy has recommended that, among others, the Laboratories of Physiology and Medicine receive 576,000 francs; Madam Curie's Laboratory in the Sorbonne, 170,000 francs, and the zoological laboratories, 630,000 francs.

Insulin Dispensed on Physician's Prescription.—Authorities in Germany have ordered that insulin should be classed among the remedies for which a medical prescription is required. This includes all pancreas extracts designed for injection. The decree states further that insulin preparations taken by the mouth have proved to date to be almost completely ineffectual.

Death of President Ebert of Germany.—The *Deutsche medizinische Wochenschrift* relates that Professor Bier performed an emergency operation on President Ebert for perforation of the gangrenous appendix within a few hours of the first appreciable symptoms. Conditions seemed to be improving. Death occurred the fifth day from intestinal paralysis, at the age of 54.

Italian Congress on Medical Radiology.—The official notice announces that the sixth annual congress is to be held at Trieste, May 7-10. Dr. P. Tandoia, Naples, will open the discussion on radiology of the biliary passages; Dr. G. Pesci, Genoa, on radiology of pleural affections, and Dr. E. Milani, Rome, on radiotherapy of endocrine glands. The president of the congress is Dr. M. Gortan, Ospedale Regina Elena, Trieste, Italy.

Research on Foot and Mouth Disease.—The Bureau of Animal Industry, U. S. Department of Agriculture, has selected scientists to conduct research in Europe on the foot and mouth disease. They are Dr. Peter K. Olitsky, Rockefeller Institute for Medical Research, New York; Jacob A. Traum, D.V.S., University of California, and Dr. Harry W. Schoening of the Bureau of Animal Industry. The delegation will go to Berlin to investigate reports of the discovery of the causative organism and then collaborate with scientists working on this problem in Budapest and Alfort, France.

America Helps Japan.—The Department of Home Affairs, Tokyo, will establish a charity hospital in Yokohama with the one million yen recently received from America as additional funds for the relief of the earthquake disaster victims. Another charity hospital to be built at Tokyo with six million yen, relief funds donated by America, will be completed in 1926, the building costing three million yen and the maintenance to be met by interest on the other three million, which will be lent to the city of Tokyo. This hospital will have more than 250 beds and accommodate more than 500 outpatients.

Personal.—Dr. A. Besredka of the Pasteur Institute, Paris, and Dr. I. Abelin, Bern, have been given grants of $1,500 and $500, respectively, by the Ella Sachs Plötz Foundation for promotion of scientific research.——Dr. L. Freund, privatdozent of medical radiology, Vienna, has been elected corresponding member of the Italian and the German dermatologic societies.——Dr. P. Sebileau is the president of the newly organized society composed of the laryngologists of the Paris hospitals. Dr. J. Rouget is secretary.——Dr. A. Souques, 17, rue de l'université, Paris, is the secretary of

the committee organizing the triple celebration of the Charcot centennial early in June.——The *Medicina Ibera* states that Dr. A. G. Tapia, Madrid, has been invited to address the Royal Society of Medicine, London, on "Surgery of the Larynx," and has been notified of his election to membership. ——Dr. T. Irisawa, professor of internal medicine, Tokyo Imperial University Medical College, has resigned on account of having reached the age limit, 60 years, after a service of thirty years with the university.——A statue of Professor Emeritus Ramon y Cajal, Madrid, was unveiled recently at the University of Zaragoza.——Prof. H. Vincent, of the Military Academy of Val-de-Grâce, inspector general of the medical department of the army, who is to preside at the International Military Medical Congress in April, has been automatically retired from his chair by reaching the age limit.

Deaths in Other Countries

Prof. **Giuseppe Ruggi**, Bologna, Italy, March 16, aged 80. ——Dr. **F. Obermayer**, formerly professor of internal medicine, Vienna, aged 64.——Dr. **T. Koch-Grünberg**, on an expedition in Brazil, in the interests of the Stuttgart museum of which he was director, died from malaria at Manaos.——Dr. **Sun Yat Sen**, formerly president of China, recently, of cancer, aged 59.

CORRECTION

Chronic Appendicitis.—In an abstract of an article by R. M. Harbin appearing in THE JOURNAL for March 21, 1925, page 922, it is stated that 0.75 per cent. of cures of chronic appendicitis were corroborated by a follow-up record. This should have read 75 per cent.

Government Services

Two Million for Walter Reed Hospital

An appropriation of two million dollars for the immediate construction of a fire-proof building at Walter Reed Hospital, Washington, D. C., has been provided by Congress. This hospital is recognized as the medical center of the army. Special attention is given there to surgical and reconstruction cases. The Secretary of War plans to complete two wings to the main hospital building, which will be fire-proof and contain wards for patients. There will also be constructed an addition to the main hospital building containing dining rooms, kitchens, wards, library, laboratory, observation and isolation wards. At present many patients are housed in temporary buildings erected during the World War. The present appropriation will permit the construction of permanent fire-proof buildings sufficient to care for 700 patients.

No Medical Corps for Veterans' Bureau

The Johnson-Reed bill, amending various laws relating to veterans of the World War and containing provision for the creation of a medical corps in the Veterans' Bureau, was passed by the House of Representatives in the closing hours of Congress. It then passed in the Senate without discussion, except that the Senate struck from the bill the provisions creating the medical corps in the Veterans' Bureau, and the bill became a law in that form. In explaining the action of the Senate committee on finance in striking out the Medical Corps sections of the bill, Senator Reed, Pennsylvania, said:

> It was proposed to create a separate Medical Corps in the Bureau. It would have been like the U. S. Public Health Service duplicated in the Veterans' Bureau. It would have added cost because it carried retirement privileges. The doctors wanted it, but we were not prepared to consent to it. The finance committee felt that such an important thing ought not to be adopted on short consideration, so we have cut out all of that from the bill.

Director Frank T. Hines of the Veterans' Bureau, and others favoring the creation of the Medical Corps, have asserted that its establishment is necessary to maintain a permanent organization of competent physicians and surgeons in the Veterans' Bureau. The present low salaries and uncertainty of tenure of service, it is asserted, prevent the upbuilding of an efficient and permanent medical personnel in the bureau.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 14, 1925.

The Study of Anthropology

The Royal Anthropological Institute has been promised a substantial grant, from the trustees of the Carnegie United Kingdom Trust, for the development of its library. This grant has been made by the trustees in pursuance of their policy of linking up special libraries with the General Library for Students. By an arrangement with the Royal Anthropological Institute, the books and periodicals in the library of the latter, except such as are rare or irreplaceable, will become available to the general public who make application for the loan of books through the central library. The central library will thus be relieved of the necessity of buying such books, and at the same time will have the benefit of the expert knowledge and guidance of the officials of the institute. As the institute's library includes a wide range of periodicals, some of which are not elsewhere accessible in this country, these facilities should be of considerable advantage to students who are not in a position to obtain access to anthropologic literature through other channels. Mr. C. G. Seligman, president of the Royal Anthropological Institute, states that the council of the institute is influenced by a desire that its facilities for the study of man should become more widely known. The council holds that knowledge of the racial affinities, ways of thought, and social organization of the primitive peoples of our empire cannot be too widely extended among the general public, if only to bring about a fuller appreciation of the importance of the study of anthropology in helping to solve the difficulties of administration among backward peoples. In spite of the grant made by the Carnegie trust and the sums subscribed by its fellows, the institute is still far from being in a position to undertake the whole of the work that it is its duty to perform. He therefore appeals, not only to those whose interest in anthropology is academic, but also to those who today realize that a sound knowledge of ethnology is an essential factor in the equipment of our colonial administrators. It is on the knowledge which the latter may acquire that the well being and security of our colonial possessions depend. For the British Empire, the problem of the government of native races exists on a scale much greater than for any other power.

The Sale of Poisons

Approval has been given by the privy council to a resolution of the Pharmaceutical Society, the effect of which is to authorize a number of alterations in the list of poisons which no pharmacist or licensed person may sell without requiring the buyer's signature and complying with other formalities. Heretofore, preparations of arsenic, except in the form of medicinal preparations, have not been subject to the same rigid restrictions as other deadly poisons, such as strychnin, aconite and belladonna. Under the new regulations, venders of such compounds as weed killers and sheep dips containing arsenic will be able to effect a sale only to persons who are known or introduced to them; they will be required to enter each transaction in the "Poisons Book," and obtain the signature of the purchaser. The main object of this is to make it more difficult to obtain arsenic for criminal purposes, and easier to trace the purchase of a poison in the event that a crime is suspected. The regulation has been made on representations of the Pharmaceutical Society, which arose in the first place out of the disclosures in a recent criminal trial. The sale of preparations of

tobacco used for agricultural and horticultural purposes will be subject to the same conditions. Another important alteration is the deletion of the word "vegetable" from the entry "vegetable alkaloids" in the prohibitions. The effect of this will be to restrict the sale of poisons that are now made, or may in future be made, synthetically. For instance, the sale of synthetic substitutes for cocain has heretofore been unrestricted. Other additions to the list are Indian hemp, well known as the basis of hashish, and the poisonous constituents of foxglove.

Indirect Methods of Advertising

The council of the British Medical Association has adopted an important report from the Central Ethical Committee, which will therefore be brought before the representative body. The report points out that from time to time there are discussed in the lay papers topics that have relation both to medical science and policy and to the health and welfare of the public, and it may be legitimate or even advisable that physicians who can speak with authority on the question at issue should contribute to such discussions. But physicians who take this action ought to make it a condition of publication that laudatory editorial comments or headlines relating to the contributor's professional status or experience shall not be permitted; that his address or photograph shall not be published, and that there shall be no unnecessary display of his medical qualifications and appointments. There is a special claim that physicians of established position and authority shall observe these conditions, for their example must necessarily influence the action of their less well known colleagues. Discussions in the lay press on disputed points of pathology or treatment should be avoided; such issues find their appropriate opportunity in the professional societies and the medical journals. After making all allowances for all those modes of publicity for which there may be some justification, there remain many instances that can be regarded only as gravely and unnecessarily contravening the spirit of the notice of the General Medical Council. The association is convinced that in taking up an attitude of determined opposition to these undesirable journalistic methods, it is acting in the best interests of the public as well as of the medical profession. The extension of the practice of discussing medical topics in the lay press can lead only to a competition for public notice, in which the abler and more scrupulous men would be left behind by those who are greatly inferior, to the detriment of the public, who are ill qualified to judge of the true worth of scientific opinions. The extension of the advertising habit among the profession in general would certainly destroy those traditions of dignity and self respect which have helped to give the British medical profession its present high status, and would gravely undermine the amenities and harmonious working of medical practice.

Epidemic of Influenza

There has been prevalent in the country for some weeks an epidemic of a mild form of influenza. The number of cases appears to be large, but the mortality is low. The epidemic seems to have reached its maximum. The number of deaths from the disease in the large cities in the last two weeks was, respectively, 354 and 352, and in London, ninety-two and eighty-eight.

Vital Statistics for 1924

The registrar-general has just issued his corrected vital statistics for England and Wales for 1924. There were 730,286 births and 473,270 deaths. The natural increase of population by excess of births over deaths was therefore 257,016, the annual average increase in the preceding five years having been 335,352. The number of persons married during the year was 592,048. The marriage rate was 15.3 per thousand of population. The birth rate was 18.8 per thousand and the death rate 12.2. Infant mortality was 75 per thousand registered births. The birth rate was the lowest recorded except during 1917-1919; the death rate was 0.6 per thousand above the rate for 1923; the infant death rate was 6 per thousand births above the 1923 rate. The "killing" diseases, so far as London is concerned, appear in the following order, which is practically the same as that of 1923, except that, owing to the presence of influenza in 1924, the respiratory disease group dominates the heart disease group:

Most Fatal Diseases in 1924

No.	Diseases.	Number of deaths.
1	Respiratory diseases	10,630
2	Heart diseases	10,191
3	Cancer	6,427
4	Tuberculosis	4,362
5	Digestive disease	3,064
6	Apoplexy	2,606
7	Old age	1,886
8	Influenza	1,643
9	Deaths from violence	1,543
10	Chronic interstitial nephritis	1,387
11	Measles	1,335

Life Insurance Without Medical Examination

The British Medical Association does not look favorably on life insurance without medical examination. The medical secretary not infrequently receives letters from members informing him that they have been asked to give information about the previous health of patients who have been accepted for life insurance without medical examination, and who have died shortly afterward. His advice to them is invariably that they should not give any information without the written consent of the relatives of the deceased. The object of insurance companies in making such inquiries is the chance of getting information regarding the previous health of the deceased which may enable them to dispute the claim and thereby evade a financial liability without taking the usual steps to protect themselves against undue risk. Whether a fee is offered or not is considered beside the point. The insurance company seems to be looking to the physician to pull the chestnuts out of the fire. The association advises physicians to refuse information and to inform the relatives that they should tell the insurance company quite plainly that if the claim is not settled promptly they will sue in the courts.

The Sale of Disinfectants for the Purpose of Preventing Venereal Disease

The minister of health has received a joint deputation from the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease, which was introduced by Sir Auckland Geddes, president of the latter society and formerly ambassador to the United States. Sir Auckland stated the case on the lines agreed at a conference of the two societies—that the law should be so altered as to permit qualified pharmacists to sell *ad hoc* disinfectants, provided they are in a form approved and with instructions for use approved by some competent authority. He urged that this authority should be the ministry of health; otherwise the medical research council or a commission of experts. In reply, the minister, Mr. Neville Chamberlain, promised to consider carefully the suggestions that had been made.

Admission of Women to Fellowship by the Royal College of Physicians

The struggle of women to obtain the same rights as men in the medical profession began only in this generation. The first and most difficult step was to gain admission to the profession. Another barrier has now been removed by the most conservative body in the profession, the Royal College of Physicians, which has passed a by-law making women eligible for fellowship.

PARIS

(From Our Regular Correspondent)

March 3, 1925.

Present Status of the Problem of Endemic Goiter

In the *Revue d'hygiène* of last month, E. Coulaud has an excellent article on endemic goiter. It is well known that goitrous areas vary considerably in the incidence of the disease, while other regions are exempt. The incidence may be very high; for instance, in the southwestern part of Switzerland (Valais) and in Savoy (Maurienne and Tarantaise); in that case the two sexes show the same incidence; many cretins, the offspring of goitrous persons, are encountered, and even fetal goiters occur. Again, the incidence may be moderate, in which case no cretins are encountered, while the infection is confined almost exclusively to females, only from 5 to 10 per cent. of the cases being in males. Or the incidence may be very low, in which case the women are alone affected, and in them disorders of ovarian functioning may be a necessary precondition for the development of goiter. Sporadic goiter, in the genesis of which heredity plays a big part, is closely analogous to the goiter of regions with a low incidence of simple goiter.

In spite of the vast amount of research work that has been done, the etiology of goiter still remains obscure. It is usually considered that mountainous regions present the most severe types of goiter. It seems, however, from recent statistics collected in Switzerland that goiter is less frequent in the mountains than in the valleys. The theory that attributed to the nature of the soil an important part in the genesis of goiter is not universally accepted. The supposed influence of this factor takes little account of the varying incidence of endemic goiter from time to time in a given region, or of inequalities of occurrence of simple goiter in different regions in which the constitution of the soil is the same.

The study of sporadic goiter sheds considerable light on the problem of hereditary transmission. Coulaud states that, in the thirteen cases of sporadic goiter, all patients had parents or grandparents who sprang from goitrous regions. Sporadic cases are found almost exclusively in females, and usually in association with ovarian insufficiency.

The question of hereditary influences affecting the thyroid has also been studied experimentally. It seems well established that it is through lactation that the influence of the thyroid of the mother manifests itself on the thyroid body of the child. Numerous researches go to show that maternal thyroid substances exist in the milk, and that their absence has an injurious effect on the thyroid of the nursling. Moreover, it is possible that, earlier still, the thyroid of the fetus may be influenced by the blood of the mother if the latter presents a harmful or insufficient thyroid secretion. Apart from this maternal influence, which seems undeniable, hereditary influences, if they exist at all, play only a very minor part.

The pathogenesis of endemic goiter has been interpreted in many different ways. Some attribute goiter to an insufficiency of iodin. Others incriminate a microbian intoxication of intestinal origin. As far back as 1852, the researches of Chatin established an unquestionable relationship between the iodin content of the water and the food, on the one hand, and the incidence of goiter and of cretinism. His findings were afterward confirmed by numerous authors and gave rise to the theory of iodin insufficiency, which recent investigations in both Switzerland and America seem strongly to substantiate. While a high iodin content of the water serves as a check on endemic goiter, it does not suppress it: the theory of iodin insufficiency cannot, therefore, be exclusive. Certain facts seem to indicate that the causative agent of goiter behaves, in some respects, like a microbe. Boiling of the drinking water reduces its goitrigenous effect. Répin and Bircher have advanced the theory that goiter is due to a colloidal substance contained in the water; MacCarrisson, on the other hand, believes in its infectious origin. The infective theory of goiter has been supported particularly by Galli Valério and Messerli, who suggest an infection by way of the digestive tract (ingestion of impure water). Numerous germs participate in this water-borne infection; Messerli thinks that the transmission of these germs may take place through direct contact. The germ theory, however, does not take account of or explain hereditary goiters. But if, on the other hand, we accept with Répin a chemical origin for goiter, a hereditary goitrous influence could be more readily understood. Be this as it may, the theory of iodin insufficiency is interesting since it has given rise to the prophylaxis of goiter. This was attempted since the good effects of iodin treatment, first recommended by Coindet at the beginning of the nineteenth century, had been confirmed As a result of the researches of Chatin, trials of iodin prophylaxis were made in France toward the middle of the last century; later in Austria and in Italy. The method, however, was soon abandoned, the heavy doses employed having resulted in numerous accidents (from 0.1 to 0.15 gm. of iodin per kilogram of table salt used in food). It is only during recent years that, under the influence of Swiss physicians, notably Hunziker and Bayard, the prophylaxis of goiter has been established on a more secure basis.

The first attempts at prophylaxis on a wide scale were carried out with school children, to whom every week a little under 0.001 gm. of sodium iodid, or approximately 0.04 gm. annually, was administered. In America, Marine and Kimball employed doses ten times as strong. But the doses employed in Switzerland, though very small, were found to be sufficient to assure satisfactory prophylaxis. With a view to making the crusade against goiter more general and extending the preventive measures to wetnurses and to mothers from the beginning of pregnancy, the plan has been conceived of again having recourse to iodized sea salt as was done in France the middle of last century. The question of dosage has been carefully studied, thanks to the researches of Fellenberg in Switzerland, who has shown that infinitesimal doses of iodin were sufficient to assure the prophylaxis of goiter. In the iodized table salt furnished for consumption in Switzerland, the quantity of potassium iodid is equal to 0.005 gm. per kilogram of salt. The use of this salt is not compulsory. The opponents of iodized salt emphasize that its use is associated with certain risks: 1. The danger of exophthalmic goiter accidents. This condition as the result of iodin has been incontestably proved. It has been frequently observed in Switzerland, but it should be remembered that in Switzerland self-treatment among goitrous persons is common. They take large doses without supervision, from which accidents may and do arise, but these accidents should not be laid at the door of proper iodin prophylaxis. 2. Iodin exerts a harmful effect on the genitalia. This action has been proved by experimentation, but the dose of iodin used in goiter prophylaxis is too small to justify any fears of its exerting the slightest harmful action on the reproductive organs. 3. Iodin prophylaxis might, in combating goiter, favor the extension of tuberculosis. Goitrous persons seem to resist tuberculous infection (Cassan, Hamburger, Betz). Coulaud has demonstrated that animals in which thyroid deficiency has been brought about by roentgen rays, are especially resistant to tuberculous infection. Animals which have not been treated but which are the offspring of hypothyroidean parents likewise show a decreased susceptibility to tuberculous infection.

In the various regions of Switzerland, too, it is asserted that there is an inverse relation between the frequency of goiters and the prevalence of tuberculosis. The question then arises whether the retrogression of goiters may not be followed by a recrudescence of tuberculosis. But in Switzerland, at least, such risks would be more than counterbalanced by the good effects of prophylactic treatment, provided the latter succeeded in bringing about a disappearance of cretinism and deaf-mutism.

In France, with the exception of Savoy, where prophylactic treatment would be indicated, most of the goitrous regions no longer suffer from endemic goiter, and there is therefore no need of introducing general prophylactic measures.

THE NETHERLANDS

(From Our Regular Correspondent)

Feb. 15, 1925.

Salaries of Medical Officers

The Nederlandsche Maatschappij tot Bevordering der Geneeskunst has addressed to the various ministerial departments that have physicians among their official personnel a study on the salaries received by the various medical officials. This study comprises comprehensive and detailed information concerning the positions held by the various medical officials; it makes exact comparisons of the conditions that must be met in order to secure these positions, and the knowledge required for each of the posts, and states what would constitute adequate compensation for the work performed.

I. Ministry of Labor, Commerce and Industry: In this department there are three classes of officials: 1. The "medical adviser" is in reality the director of the medical service and the technical counselor of the administration of the Rijksverzekeringsbank. 2. The "medical controller" is the authority who passes on all insurance. It is his duty to study every case by itself, and on that account he must be familiar with all modern scientific ideas and interpretations, and all therapeutic innovations, and must be able to discuss any and all questions arising in any branch of medicine. 3. The assistant controller is, as the term implies, the subordinate of the medical controller. 4. The physicians attached to the Rijksverzekeringsbank are divided into two classes: those who have charge of the application of the law pertaining to invalidity, and those in charge of the administration of the workmen's compensation law. In the same department there are a number of similar positions: the medical advisers and the medical inspectors of labor, the physicians attached to the various councils of labor, and the public health inspectors. The latter are occupied with the institution of prophylactic measures for the protection of patients. Their functions are comparable with the duties of the directors of public health in the large cities. Their influence may be considerable and their field of action very extensive, through the relations that they have with the physicians, the authorities and individuals, not only from the standpoint of social hygiene but also from a financial point of view, for their decisions always affect the administration of public funds. The salaries of these various officials, according to the findings of the society, should range from 5,500 to 10,000 florins ($2,200 to $4,000).

II. Ministry of the Interior: The physicians in charge of psychopathic institutions are classified under this department. In addition to their studies for their medical diploma, they must have specialized in psychiatry. They devote all their time to their duties. The initial salary should not be less than 5,000 florins ($2,000).

III. Ministry of Justice: The medical men attached to this ministry are chiefly prison physicians. In the smaller institutions the service is provided for through contract with the physicians of the locality, who have at the same time a civil practice. In some of the larger prisons, certain specialists are attached in addition to the regular practitioners; for instance, at Rotterdam, where there are a venerologist and a psychiatrist in addition to an attending physician.

IV. Ministry of the Marine: The officials of the navy medical corps are divided into: sanitary officers of the first and second class; superior sanitary officers of the first and second class, and the inspector general of the navy medical corps. The initial salaries are, respectively, 3,900, 3,000, 6,100, 4,800 and 8,200 florins for unmarried men, with an additional allowance of 400 florins for married officers. The society demands an increase in the salaries and particularly a more favorable adjustment of pensions.

V. Ministry of War: The report of the commission emphasizes the importance of medical posts in the war department. The significance of the medical corps of an army in the field and the need of an exemplary organization cannot be overestimated, as is apparent to every one who is familiar with the events of the recent war. The army medical corps should be completely organized in time of peace. The report brings out the fact that army surgeons are required to study seven years to secure their diploma and to spend three years more at the Royal Military Academy. Owing to the strict requirements for entering the service, officers of the army medical corps are distinctly at a disadvantage, considering their age, in competing with other officers, in spite of the fact that they are privileged to have a private practice, which, however, very few of them find feasible. Their compensation is inadequate, and the commission has demanded an improvement in their situation, and, especially, a revision of the pension rates.

The enormous task performed by the special commission of the Nederlandsche Maatschappij tot Bevordering der Geneeskunst is evidence of the society's spirit of initiative and its loyalty to the general interests of the medical profession. This survey, which embraces all the administrative posts in charge of members of the medical profession, shows likewise the indefatigable energy of the directors of the great national medical organization.

Medical Certificates for Drivers of Automobiles

The law pertaining to vehicle traffic contains a paragraph requiring every driver of an automobile to provide himself with a physician's certificate to the effect that he has no physical or mental disabilities that would disqualify him from such responsibility. The minister holds that the right to examine applicants for a driver's license should not devolve on every physician whosoever, and the executive committee of the Nederlandsche Maatschappij tot Bevordering der Geneeskunst has urged him to study the question carefully. This committee appointed a commission to study the mental and physical qualifications needed by automobile drivers and to establish the conditions of a psychotechnical test of chauffeurs. The committee has issued a new appeal to the members of the society urging them to refuse to furnish certificates for the present, so as to avoid assuming unnecessary responsibility and to hasten the elaboration of some definite plan.

Encouraging Results of the Antituberculosis Crusade

In *Verslagen en Mededeelingen betreffende de Volksgezondheid* is published the report of the antituberculosis administration for the year 1923. The results from the expended effort are very encouraging, for the decrease in tuberculosis mortality observed in 1919 is becoming more marked. The mortality rate for 1918 was 20.25; for 1922, 11.45, and for 1923, 10.53 per 10,000 inhabitants. If we compare the figures for the general mortality with the tuberculosis mortality, we note likewise that the tuberculosis mortality has decreased more

rapidly than the general mortality. During 1923, several new services were opened; more particularly, several district consultation bureaus were added, with the result that the influence of the services has been extended over a wider extent of territory. The number of tuberculosis sanatoriums seems sufficient for present needs.

BERLIN

(From Our Regular Correspondent)

Feb. 28, 1925.

The Amount of Energy Expended by Mental Work

In a series of very carefully conducted experiments on six subjects accustomed to mental work, Ilzhöfer of Munich has been investigating the amount of energy expended by lighter and heavier forms of mental work. In his estimates he followed the Krogh method of computation. During the performance of the mental work, the various experimental subjects, who assumed an extended supine position, were observed to present more or less individual peculiarities of breathing. During intense mental work, respiration in all subjects became accelerated, and in many persons' more irregular than under conditions of mental rest or during light mental employment. Taking the energy used during mental rest as a standard for comparison, the caloric expenditure during light mental work increased, on the average, 1.6 per cent., and during intense mental work, 5 per cent. In the first case, the increase was very slight—scarcely worth considering, in fact; in the second case, the increase was, to be sure, somewhat greater but yet, comparatively speaking, very slight. But even this slight increase in caloric expenditure must be due, in part, to accelerated respiration; to various muscular movements associated with the mental work (change of head position, the action of the eye muscles), and to greater muscular tension. After carefully weighing all the factors, the author concluded that there was no evidence that the metabolism occasioned by mental work had increased the total energy exchange to any appreciable extent.

Use of the Radio for Continuation Lectures in Medicine

The technical installations needed to use the radio for continuation lectures in medicine will be completed in from two to three months. In the vicinity of Berlin (at Königswusterhausen) a new 20,000 watt broadcasting station will be erected, and will be used mainly for educational purposes. After the Central Institute for Education and Instruction became associated with the *Gemeinderundfunk*, the federal committee appointed to take charge of medical continuation courses also entered into a contract with the *Gemeinderundfunk* to secure the use of the new broadcasting station for postgraduate medical education. Connections with the *Gemeinderundfunk* may be established in two ways, either through cooperation with other societies associated with the *Gemeinderundfunk*, or by the installation of one's own apparatus. The ordinary radio apparatus, which is adapted for wave lengths of from 300 to 700 meters, cannot receive the transmissions of the new broadcasting station because of the high wave lengths (1,800 meters).

Appointment of Special Medical Examiners for Prisoners

Until recently it has been the custom to take prisoners awaiting trial, who required some special form of treatment, to the Charité hospital. Since from eight to ten prisoners had to be transported every day, a large number of guards was needed. It often happened, too, that, while en route or during the stay in the hospital, the prisoners attempted to escape. Now specialists have been appointed who will visit the jail regularly, so that it will rarely be necessary to transport prisoners to the hospital. For this purpose the jail has been provided with modern medical apparatus.

The Crusade Against Alcoholism

Since the war, as has already been frequently stated, the consumption of alcoholic beverages, with its accompanying baneful consequences, has again steadily increased. In 1922, the number of persons addicted to the use of alcohol admitted to psychopathic hospitals and similar institutions increased greatly over the previous year (38.5 per cent. increase for men and 40 per cent. for women). In 1923, however, statistics on alcohol consumption and on the number of addicts admitted to some of the larger German psychopathic hospitals furnish evidence that there has been no further increase and that there may have been a slight decrease. Beer production in Germany for the fiscal year 1923-1924, according to official reports, ranged around 27,000,000 hectoliters, although the brewery interests, making a certain allowance for the occupied territory from which reports are incomplete, place the production at 29,000,000 hectoliters. This required the utilization of vast quantities of grain and other foodstuffs, or, according to official reports, about half a million tons of malt; about 30,000 tons of rice, corn meal and corn starch, and 2,100 tons of sugars. Alcoholic beverages are also imported. During the first eight months of 1924, the excess of wine and "*Most*" imports over exports amounted to approximately 400,000 hectoliters, having a value of around 22,000,000 gold marks. Since the first of this year, the production of full strength beer has been permitted without restrictions, and for some time past the limitations on the amount of grain to be consumed in distilleries seem to have been removed. As an indication of the increased consumption, the federal tax receipts for beer, during the first eight months of the current fiscal year, amounted to 16,700,000 marks in place of the estimated 10,500,000 marks, and the receipts for wine to 6,860,000 marks, instead of the estimated 3,000,000 marks. Accordingly, at the summer session of the Prussian legislature, the members of the physicians' bloc, serving on the chief committee, brought out the fact that in terrible contrast to the widespread suffering among the children and elsewhere, the use of alcoholic beverages, and especially of brandy, had increased at a monstrous rate in many quarters and was undermining the public health. Welfare centers for alcoholic patients report a large number of applicants for admission. At the welfare station in Mannheim, for instance, during the fiscal year ending with October last, no less than 432 new cases, male and female, were admitted, bringing their total up to 2,500. The abuse of alcoholic beverages is found to no slight extent among women. For instance, at the Psychopathic Clinic in Frankfort-on-the-Main, there were, in 1922, thirty-nine women among the alcoholic patients admitted, and in 1923 twenty-three women, while at the municipal care-taking center in Dresden the number of alcoholic women admitted in 1922 and 1923 were, respectively, thirty and twenty-five.

As yet, no effective governmental action to check the rising tide can be announced. The volunteer organizations are, however, beginning to show more activity and are endeavoring to enlighten the people and to introduce prophylactic measures wherever possible. The traveling exhibit of the German Verein gegen den Alkoholismus has been circulating in the Rhine region for several months, while the public health exhibit of the Red Cross Society, with a department on alcoholism, is being shown in other parts of the country. Both exhibits are accompanied by lectures. Unfermentative processes for preserving various fruits were introduced last fall to a wider extent. Southern Germany, in the nature of the case, showed the greater interest in this movement. Considerable quantities of nonalcoholic beverages were produced. In Bavaria a special distributing center for the newer products was established by the Landesverband für Obst- und

Gartenbau. The leagues that oppose the sale of alcoholic beverages are planning two large congresses this year in furtherance of their propaganda: in April a second general congress of the opponents of alcohol will be held in Düsseldorf, and in the fall a third German congress to promote total abstinence among children will convene in Hamburg.

The federal government has introduced a bill in the Reichstag, providing for an increase of the tax on beer and tobacco. The tax on beer, if the bill is accepted, will be doubled; the tax on cigar and pipe tobacco will be increased from the present rate of 20, to 25 per cent. of the retail price; the tax on cigarets and finecut smoking tobacco will be raised from the present rate of 40, to 50 per cent.; chewing tobacco, from 5, to 10 per cent., and snuff, from 10, to 15 per cent.

VIENNA

(From Our Regular Correspondent)

Feb. 16, 1925.

The Medical Certificate as a Prerequisite for Marriage

Professor Finger recently discussed, before an invited gathering, the question of requiring a medical certificate as a prerequisite for the securing of a marriage license, as is being done by legislative enactment in several European countries. As the speaker explained, the purpose of the measure is to protect posterity and the matrimonial partner from disease. The main diseases for which evidence is sought are mental affections, mental inferiority, tuberculosis and venereal diseases. The internists attach great weight to the discovery of traces of mental disease. As for the venereal diseases, the dermatologic specialists are not so convinced of the value of such a certificate, since they are somewhat skeptical of the results. If sexual intercourse could be confined to married persons, of which there seems little likelihood for the present, they would have more confidence in the measure. It is a well known fact that intercourse before marriage or in violation of the marriage vow is very frequent. Under such conditions, a medical certificate as a prerequisite for marriage would seem to be a mere formality. Furthermore, the certificate of a physician that an applicant for a marriage certificate is free from disease has only momentary value. Even at the time the certificate is executed, a latent infection may be present. Nor does the certificate give any assurance for the future, since it is possible that the applicant may expose himself to infection the day after receiving the document. It would seem therefore useless to demand such a certificate. Furthermore, a knowledge of a patient's past history is often needed in order to diagnose an affection. If the applicant for a certificate chooses to withhold information that might be derogatory to himself, an exact opinion as to his present state of health may be impossible for the reason that the examination alone, without knowledge of previous treatment, does not furnish an adequate basis for judgment. Even a blood examination gives no positive proof of perfect health. A mere negative statement that no evidence of disease can be found does not constitute any real basis for the adoption of a law. The only possible way of securing reliable information would be to require the keeping of health record cards for all inhabitants, on which would be recorded brief statements in regard to all affections from which persons had suffered from their childhood up, which, for the time being, at least, does not seem feasible. Specialists are therefore inclined to take the view with reference to the question that no person who has been ill should be allowed to marry until he has secured permission from his attending physician.

In Germany and in Switzerland the law requires both applicants for a marriage license to reveal to one another what diseases (also venereal) they have had. Otherwise, the party that learns after marriage that some fact in regard to a communicable disease has been withheld from him (or her) "which, if he (or she) had known the situation, and in view of an intelligent conception of the significance of marriage, would have prevented him (or her) from entering into a marriage contract with his (or her) spouse" is entitled to bring suit for the annulment of the marriage contract (Deutsches Bürgerliches Gesetzbuch, Section 1333; also Schweizer Bürgerliches Gesetzbuch of 1912, Articles 124 and 125). Many such suits have been brought and many marriage contracts have been annulled by reason of withheld information with reference to venereal disease.

Honors Shown Two Dermatologists

The physicians of Vienna were afforded recently the rare opportunity of celebrating the seventieth birthday of two representatives of the same medical specialty, both of whom are leaders in the branch of medicine to which they have devoted their lives. Both men are dermatologists. The one, Professor Riehl, is the head of Vienna's first clinic for skin and venereal diseases. The other, Professor Ehrmann, was formerly likewise the head of a similar department in the general hospital, but this department was recently discontinued. The ceremonies were participated in by a large gathering composed of members of all the medical and scientific societies of Vienna. During his early career Riehl was an assistant to Kaposi and to Hebra. He early devoted himself to the histology of the skin, and in his researches succeeded in discovering and recording many new and fundamental facts. He was known as an energetic organizer, for which reason he was called in 1896 to Leipzig and assigned the task of organizing the work of the newly founded clinic. In 1902, he was called back to Vienna as the successor of Kaposi and has remained here ever since. He established here a serologic station and has been a leader in his advocacy of phototherapy in dermatology. The roentgen-ray and radium institutes of Vienna are the result of his initiative. Owing to the high honor and esteem in which he was held, Riehl was chosen rector of the university, the first time that a dermatologist has been thus distinguished.

The second dermatologist who had completed his seventh decade was Professor Ehrmann. He succeeded through his natural gifts, in spite of many religious and national hindrances that were constantly threatening to block his path, in rising to the top. Marked artistic talents, associated with a keen power of observation and a very forcible style of utterance, made Ehrmann the highest type of diagnostician. His researches on the reciprocal action existing between the skin and the intestine, and his studies on syphilis and modern therapy, together with his marked talent for teaching, caused his clinic to become the mecca of many dermatologists. The celebration given in his honor evidenced the high esteem in which he is held by all.

Marriages

Joseph Russell Sweeney, Tamaqua, Pa., to Miss Helen Louise Minnich of Hazleton, January 31.

William John Ryan, Philadelphia, to Miss Anna Gertrude Ronon of Mount Airy, Pa., January 19.

William Grant Tucker to Mrs. Florence Moffitt, both of Naches, Wash., at Seattle, March 3.

Charles Albert McNeil to Miss Helen Rose Duffey, both of Toledo, Ohio, recently.

Louis D. Englerth to Miss Margaret E. Rapp, both of Philadelphia, Dec. 3, 1924.

James Roberts Care, Norristown, Pa., to Miss Edith Earl, of Ashland, January 10.

Bill A. Luckinbill M.D.

Deaths

Byron E. Miller, Portland, Ore.; Cleveland University of Medicine and Surgery, 1883; member and secretary of the State Board of Medical Examiners of Oregon, 1895-1908 (president, 1908-1909); delegate to the World's Medical Congress, 1895; medical director, American Life Insurance Company of Oregon; aged 69; died, February 25, of injuries received in an automobile accident.

Walter Alphonse Dorion, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1902; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, 1904; formerly demonstrator of histology, McGill University Faculty of Medicine; at one time superintendent of the Western Hospital; aged 48; died recently, of cerebral hemorrhage.

Wallace Boyd Russell, Changchow Ku, China; University of Tennessee College of Medicine, Memphis, 1908; formerly a practitioner in Tennessee, Indiana and Kentucky; served as a medical missionary; chief surgeon and formerly superintendent of the Changchow General Hospital; aged 42; died, February 24, of typhus fever.

John Beresford Tomlinson Cummings, Hinton, W. Va.; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; member of the West Virginia State Medical Association; formerly on the staff of the Hinton Hospital; aged 55; died, February 20, at Clearwater, Fla., of heart disease.

John N. Becker ● Reading, Pa.; Jefferson Medical College of Philadelphia, 1882; member of the board of health for twenty years, eight years of which he served as president; aged 66; died suddenly in February, of heart disease.

Raymond Moore Tilton, Columbus, Ind.; Medical College of Indiana, Indianapolis, 1902; member of the Indiana State Medical Association; aged 42; died, February 5, at Indianapolis, of acute nephritis and myocarditis.

William Wesley Wimer, San Antonio, Texas; California Eclectic Medical College, Los Angeles, 1904; served in the M. C., U. S. Army, during the World War; aged 51; was killed, February 21, by an automobile.

Albert Monroe Drew, Decatur, Ill.; Miami Medical College, Cincinnati, 1873; member of the Illinois State Medical Society; aged 76; died, March 1, at the Illinois Masonic Home, Sullivan, of heart disease.

George Warner Mosher ● Chicago; Rush Medical College, Chicago, 1905; member of the Chicago Laryngological and Otological Society; aged 46; died, March 19, of a self-inflicted bullet wound.

Reuben Y. Phillips, Malvern, Ark.; University of Arkansas Medical Department, Little Rock, 1891; member of the Arkansas Medical Society; aged 59; died, February 27, of pneumonia.

Hugh Allison Hart ● Wooster, Ohio; Medical Department of the University of the City of New York, 1867; formerly state senator; aged 81; died, in February, of injuries received in a fall.

Pierre Albert Moore, New Orleans; Jefferson Medical College of Philadelphia, 1895; member of the Louisiana State Medical Society; aged 63; died, February 11, of angina pectoris.

Charles Francis Maguire ● Somerville, Mass.; Medical School of Harvard University, Boston, 1897; on the staff of the Somerville Hospital, where he died, February 28, aged 52.

George Archer Hankins, Williamsburg, Va.; Medical College of Virginia, Richmond, 1873; Civil War veteran; formerly coroner; aged 87; died, February 27, following a long illness.

William Arnold Greene, Douglas, Ariz.; Medical Department of the University of the City of New York, 1895; aged 53; died, Dec. 15, 1924, of chronic nephritis and uremia.

J. R. Mallard, Columbia, Tenn.; University of Nashville Medical Department, 1870; Confederate veteran; aged 84; died, February 23, at the Kings Daughters Hospital.

Daniel T. Abell, Sedalia, Mo.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1860; aged 87; died, February 24, of pneumonia and chronic nephritis.

Sadie MacFarland, Burlington, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1921; aged 35; died, February 8, of chronic interstitial nephritis.

Charles Henry Dickinson, Easthampton, Mass.; Medical Department of Columbia College, New York, 1878; aged 69; died, January 6, of cerebral hemorrhage.

John C. Lingle, Middletown, Pa.; Hahnemann Medical College of Philadelphia, 1881; also a druggist; aged 65; died suddenly, February 16, of heart disease.

Daniel Lambert Cole, Oskaloosa, Iowa; College of Physicians and Surgeons, Keokuk, 1881; aged 79; died, February 2, at Tacoma, Wash., of angina pectoris.

Herbert Christopher Day ● Exeter, N. H.; University of Louisville (Ky.) School of Medicine, 1896; aged 60; died, February 27, of cerebral hemorrhage.

George McKenzie Bowman, Weyburn, Sask.; University of Toronto (Ont.) Faculty of Medicine, 1889; aged 57; died, Dec. 16, 1924, of coronary embolism.

Luther L. Rowalt, Madison, S. D.; University of Pennsylvania School of Medicine, Philadelphia, 1861; Civil War veteran; aged 85; died in February.

Thomas W. Ashley, River Falls, Wis.; Hahnemann Medical College and Hospital, Chicago, 1884; aged 72; died, January 23, of pernicious anemia.

Franklin D. Kerr, Hookstown, Pa.; Western Reserve University School of Medicine, Cleveland, 1878; Civil War veteran; aged 80; died, February 25.

Lee Othel Mason ● Bevier, Mo.; Birmingham (Ala.) Medical College, 1904; formerly county coroner; aged 44; died, February 23, of chronic nephritis.

Thomas M. Cahill, New Haven, Conn.; Yale University School of Medicine, New Haven, 1888; aged 62; died in February, of angina pectoris.

William F. Hargrove ● Kinston, N. C.; University of Maryland School of Medicine, 1901; aged 62; died, February 28, of cerebral hemorrhage.

Ephraim M. Dixon ● Stockdale, Ohio; University of Louisville (Ky.) School of Medicine, 1894; aged 58; died, February 20, following a long illness.

Charles Samuel Hamilton, Coburg, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1868; aged 81; died, Dec. 31, 1924.

James N. Walker, Linesville, Pa.; Jefferson Medical College of Philadelphia, 1878; aged 76; died, February 23, following a long illness.

John Abner Pruit Robinson, Florence, Ala.; St. Louis Medical College, 1871; aged 83; died suddenly, February 17, of cerebral hemorrhage.

Frederick C. A. Kellam, Pungoteague, Va.; University of Maryland School of Medicine, Baltimore, 1866; aged 79; died, January 5.

Levi Hilliard Miller, Ardmore, Okla.; Memphis (Tenn.) Hospital Medical College, 1890; aged 64; died, February 21, of pneumonia.

John R. Stein, Shenandoah, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1902; aged 44; died, February 1.

James F. Gibson, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1891; aged 74; died, January 4.

George Joseph Gordon, Chicago; University of Illinois College of Medicine, 1915; aged 34; was shot and killed, March 14.

Egbert Eugene Loomis, Janesville, Wis.; Chicago Medical College, 1873; aged 78; died, January 22, at the Mercy Hospital.

John D. Riley ● Mahanoy City, Pa.; University of Pennsylvania School of Medicine, 1895; aged 57; died, Dec. 31, 1924.

James C. Greer, McKinney, Texas; College of Physicians and Surgeons, Baltimore, 1891; aged 63; died, February 26.

Lawrence DeHaven Smith ● Pitcairn, Pa.; Jefferson Medical College of Philadelphia, 1903; aged 51; died, in February.

James Patrick Broidrick ● Boston; Jefferson Medical College of Philadelphia, 1869; aged 76; died, February 26.

Harry Partee Hurley, Chicago; Cleveland Medical College, 1897; aged 64; died, March 13, of cerebral hemorrhage.

James Richard Robins, Siloam, Ga. (licensed, Georgia, 1888); aged 85; died, February 26, at Atlanta.

Isom Clark Simmons, Cleveland, Tenn. (licensed, Tennessee, 1889); aged 84; died, February 23.

Correspondence

THE DIGESTION HEMOCLASIS TEST IN THE STUDY OF HEPATIC INSUFFICIENCY

To the Editor:—In THE JOURNAL, Oct. 4, 1924, G. M. Piersol and H. L. Bockus published a paper on "Comparative Studies in Liver Function by Some of the Later Methods." We were surprised to see that the description they give of the digestion hemoclasis test does not tally with the description we gave in 1920. They describe the test as follows:

> A test known as Widal's hemoclastic crisis test has been based on this proteopexic dysfunction. A leukocyte count, and blood pressure and pulse readings are taken on the fasting stomach. The same procedure is repeated one and two hours after the patient has taken 200 c.c. of milk. In the presence of liver impairment, there should occur a drop in the white cell count and a decrease in the blood pressure and pulse readings one or two hours after the milk has been ingested.

Had the authors perused our papers published with Dr. Iancovesco in the transactions of the Academy of Sciences (Possibility of Producing the Hemoclastic Crisis by Intravenous Injection of Blood Withdrawn from the Portal Vein in the Course of Digestion: Action of the Liver on Incompletely Disintegrated Proteins Arising from Digestion and Conveyed by the Portal Vein, *Compt. rend. Acad. d. sc.* **171**:74 [July 12] 1920; Digestion Hemoclasis Test in the Study of Hepatic Insufficiency, ibid. **171**:148 [July 19] 1920; Digestion Hemoclasis Test in Latent Hepatism, ibid. **171**:223 [July 26] 1920) or in the *Presse médicale* (Digestion Hemoclasis Test in the Study of Hepatic Insufficiency, *Presse méd.* **28**:893 [Sec. 11] 1920), they would have seen that it is not one or two hours after the ingestion of 200 c.c. of milk that the leukocyte count should be taken and the blood pressure measured (we have never mentioned the number of pulsations), but every twenty minutes after the ingestion. They would have realized that this timing of the tests is not arbitrary: their close repetition can alone reveal the hemoclastic crisis which otherwise would pass totally unperceived.

In almost 80 per cent. of the cases, digestion hemoclasis is at an end in less than one hour after the ingestion of milk. It is clear, therefore, that if, following Piersol and Bockus' technic, the test is made one hour and two hours after the milk has been taken, the conclusion will be that the test is negative, whereas, as a matter of fact, in half the cases the reactions will have taken place without being observed.

The total number of cases in which, since our early researches, we have found the hemoclasis test present, is now 432. In 202 cases the crisis was over in one hour. In 46 per cent. of the cases, therefore, Piersol and Bockus' technic is at fault. It is not surprising, under the circumstances, that these authors have found that "44 per cent. of the cases giving evidence of liver damage by Rosenthal's method showed no evidence of impairment by the hemoclasis test."

The test for functional hepatic impairment to which Piersol and Bockus have compared the digestion hemoclasis test is that of Rosenthal, based on the rapidity with which phenoltetrachlorphthalein, injected into the blood, disappears from the blood stream. We have had no personal experience with this method, but we were much interested to see its results, which are practically identical with those that we have obtained in studying the proteopexic insufficiency of the liver and which we have published in detail.

Piersol and Bockus have shown that the injection of arsenical compounds used in the treatment of syphilis (arsphenamin, tryparsamide) produces almost constantly some functional impairment of the liver easily evidenced by Rosenthal's method. This impairment, always evident in cases of arsenic jaundice, in which it is often traceable several months after the jaundice has disappeared, is also frequently found (three times out of six) even in patients who have shown no sign of jaundice.

Now, it so happens that those are the very conclusions to which, four years ago, the hemoclastic test led us. We have shown, on the one hand, that injection of 0.3 or even 0.2 gm. of neo-arsphenamin is sufficient to produce proteopexic incompetence, absent heretofore; on the other hand, patients subjected to severe arsenical cures could show evidence of manifest proteopexic insufficiency several months after the treatment had been stopped. The results observed by Piersol and Bockus with Rosenthal's method confirm, therefore, those that we had obtained with the digestion hemoclasis test. The same may be said of catarrhal jaundice, gallstones and diabetes.

There is one kind of liver disease—cirrhosis—in which the results obtained by Piersol and Bockus with Rosenthal's method differ from those given us by the digestion hemoclasis test. We have shown that, in certain of these cases, one test was sometimes negative, sometimes intermittently positive, as if, in spite of extensive sclerosis of the connective tissue, the hepatic cells retained, at least for a long time, the integrity of their proteopexic function. The four cases of cirrhosis investigated by Piersol and Bockus with Rosenthal's method show well defined hepatic insufficiency. It is interesting to note that, among all the diseases of the liver studied by Rosenthal himself with his technic, it is in cirrhosis that the retention of phenoltetrachlorphthalein was the smallest, as if, says the author, "the chronicity of the condition probably allowed considerable compensation of function to take place."

In amebic hepatitis, the digestion hemoclasis test assumes first rate importance, as we have shown with Dr. J. Hutinel (Investigations on Proteopexic Incompetence of Liver in Dysenteric Hepatitis, *Compt. rend. Acad. d. sc.*, Feb. 6, 1922). In spite of the often considerable size of the abscess developed in the liver substance, the healthy condition of the neighboring tissue suffices to insure the maintenance of the proteopexic function and the hemoclastic test is negative, under the condition that the patient did not receive arsenical injections, which, by themselves, are able to give proteopexic incompetence. It is the same with hydatid disease, in which, for identical reasons, the test may be negative in spite of the large size of the cyst. These facts are interesting, not only in that they establish the value of the method we have described, but also as showing the value of the digestion hemoclasis test for the diagnosis of certain liver diseases often difficult to recognize.

In comparing the results obtained by two such different methods of functional examination as digestion hemoclasis and the phenoltetrachlorphthalein test, the surprising fact is not that there should be some discrepancies but, on the contrary, that the results should be so similar. What Rosenthal's test demonstrates is the inadequate absorption by the hepatic cells of certain dyes contained in the blood plasma. The digestion hemoclasis test explores a totally different function: the proteopexic function, that is to say, the power possessed by the hepatic cell to arrest proteins incompletely distintegrated, which, in the course of digestion of albuminoid substances, break through the intestinal barrier and enter the portal vein. In our papers read before the Academy of Sciences we have related the experiments that establish beyond doubt the existence of this function. We have shown that, whereas in a normal dog the absorption of meat always produces leukocytosis (a fact recognized long ago), it is enough to establish a temporary fistula of Eck during the digestion of a meal composed of meat, or to inject into the blood stream of the animal a sufficient amount of blood from

the portal vein, to see at once a marked hemoclastic crisis appear. This crisis reveals the sudden penetration into the blood stream of protein substances that are no longer arrested by the liver.

Now, *a priori*, there can be no necessary parallelism between the proteopexic function and that investigated by Rosenthal's method. As we have shown in regard to digestion hemoclasis, the results of this test cannot always be superimposed on those given by the urobilin test or by the test based on the retention of bile salts. In many cases in which hepatic insufficiency is concerned, the disturbances observed are dissociated. One alone of those tests cannot therefore take the place of the others: they investigate different functions, and each one must add to the information given by the others. When we desire to investigate the function of an organ, we can never have too much light.

It has been said that the digestion hemoclasis test is essentially a means of investigating the tone of the sympathetic nervous system and that positive results are observed in cases of vagotonia. This is a mistake. Sufficient proof of this is found in the extreme frequency with which digestion hemoclasis is observed in cases in which the liver is obviously incompetent, and in the fact that the test is negative when the liver is normal. We should otherwise be led to conclude that the most trifling alteration in the hepatic functions—such, for instance, as the perturbation that follows the injection of 5 grains of neo-arsphenamin—is enough to produce a lasting condition of vagotonia. Moreover, having examined in forty-eight patients the tone of the sympathetic nervous system by means of various tests (oculocardiac reflex, solar reflex, and reactions to atropin and epinephrin), we have found that there is no necessary relationship between the sympathetic tone and the results of the digestion hemoclasis test. The test may be positive when the subject is sympathicotonic; sometimes it is negative although he is markedly vagotonic. Only twice in vagotonic subjects has the hemoclasis test been positive although there was no other clinical or neurologic sign of hepatic dysfunction. The question arises whether marked vagotonia is not enough to bring about a disturbance in the functions of the hepatic cells.

In practice, we must not expect from these tests wider information than they can give. No doubt, in the case of obvious liver disease a positive digestion hemoclasis test will most commonly adduce no fresh evidence, either diagnostic or prognostic. The proteopexic function is so easily perturbed and its inadequacy is sometimes so ephemeral that the result of the hemoclasis test can afford no basis for prognosis. Nothing could be more typical in this respect than the study of the proteopexic function in regard to surgical anesthesia. As we have already shown with Dr. J. Hutinel, the three general anesthetics most commonly used in surgery, chloroform, ether and nitrous oxid, have an action on the liver cells. The most sensitive index of this functional disturbance is the proteopexic incompetence which frequently appears before any other liver symptom (such as urobilinuria or retention of bile salts) and which, in certain cases, is alone observable. With chloroform, proteopexic inadequacy is constant even with small doses of the anesthetic: with ether and nitrous oxid, small doses do not produce proteopexic inadequacy, which appears only after prolonged anesthesia. But this disturbance has no prognostic significance: it is a flitting perturbation, which disappeared after a few days in all the patients we have observed and who had been anesthetized for periods extending to thirty-seven minutes.

And yet, even in cases of evident hepatitis, the result of the digestion hemoclasis test is far from negligible. It gives interesting information from the standpoint of pathogenesis: it shows that liver inadequacy is governed much more by the extent and diffusion of the cellular alterations than by their severity. Thus, we observe it constantly in benign conditions such as catarrhal jaundice and hepatic congestion due to heart disease: in these cases it constitutes one of the earliest symptoms. On the other hand, as we have seen, it can afford valuable help for the ofttimes difficult diagnosis of such diseases as amebic abscess or hydatid cyst, in which, in spite of extensive destruction of liver tissue, the unadulterated condition of the remaining substance is sufficient to insure the maintenance of the proteopexic function.

The digestion hemoclasis test acquires an important practical value in what we have termed latent hepatism when, in the absence of any obvious sign of liver trouble, the clinician wishes to be informed of the integrity or otherwise of the organ. In those cases, the slightest functional disturbance acquires undeniable diagnostic value.

Like all other biologic tests, it is not infallible: it may be doubtful, it may fail entirely. But it rests on an indisputable physiologic foundation and, moreover, it is perfectly harmless. It is essential that the leukocyte count be most rigorously taken every twenty minutes after the ingestion of 200 c.c. of milk. That is the only difficulty of the method. It is necessary also that, in taking the successive counts, much more minute care be exercised than in the ordinary leukocyte counts, in which a mistake of a few hundred cells more or less makes little difference. Where the digestion hemoclasis test is concerned, a mistake of this sort can vitiate the result entirely. It is doubtless because of technical errors that certain observers have arrived at discrepant conclusions regarding the value of the test we have suggested. These errors are often impossible to gage from the mere perusal of the papers. But when the authors, as Piersol and Bockus have done, take care to describe their technic, it is possible to ascertain the reason for their erroneous results. And that is why we have deemed it necessary to point out the means of correcting them.

FERNAND WIDAL, M.D.,
PIERRE ABRAMI, M.D.,
Paris.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DOSAGE OF LUMINAL (PHENOBARBITAL)

To the Editor:—We have been accustomed in the treatment of epilepsy to give a routine dosage of 1½ grains of luminal once a day; occasionally, a patient needs 3 grains, but we never exceed 1½ grains three times a day, feeling that any dosage above that is not only dangerous but does no more good than the small amount. What may be considered an ordinary dosage of this drug? ———, M.D., Mass.

ANSWER.—For an adult ordinarily 1½ grains (0.1 gm.) of luminal (phenobarbital) three times a day is sufficient. Occasionally the dosage may be increased to four times a day. A dosage of 10 grains (0.65 gm.) in a day is considered a maximum safe dosage. If impossible to secure satisfaction with this dosage, it is perhaps better to combine this drug with bromids.

INSULIN IN DIABETES COMPLICATING PREGNANCY

To the Editor:—I have a patient with diabetes who is four months pregnant. I have been unable to get her sugar free the last two times even on starvation diet for two days at a time. Is there any contraindication for using insulin, and would you advise it for a pregnant woman? SARA E. HEWETSON, M.D., Freeport, Ill.

ANSWER.—There is no contraindication for using insulin in diabetes complicated by pregnancy. In fact, in the cases that have been treated so far, insulin has been the means of carrying pregnant diabetic patients through to normal term.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7-8. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

COLORADO: Denver, April 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 14. Sec., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.

HAWAII: Honolulu, April 13. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

IDAHO: Boise, April 7. Dir., Mr. Charles Laurenson, Boise.

ILLINOIS: Chicago, April 14-16. Supt. of Regis., Mr. V. C. Michels, Springfield.

MINNESOTA: Minneapolis, April 7. Sec., Dr. Thomas McDavitt, 734 Lowry Bldg., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, May 4. Sec., Dr. S. L. Lee, Carson City.

NEW MEXICO: Santa Fe, April 13-14. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, April 14-15. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 2-3. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 7. Dir., Mr. J. T. Hammond, State Capitol, Salt Lake City.

North Dakota January Examination

Dr. G. M. Williamson, secretary, North Dakota Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, Jan. 6-9, 1925. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Four candidates were licensed by reciprocity, and one by endorsement of credentials. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
University of Illinois	(1924)	86.2
University of Manitoba	(1924, 3)	78, 82.2, 86
University of Toronto	(1922)	83.5

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1916)	Illinois
University of Minnesota	(1917)	Minnesota
(1920) California, (1923) Minnesota		

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Edinburg, Scotland	(1922)*	N. B. M. Ex.

* Graduation not verified by the American Medical Association.

Wyoming February Examination

Dr. J. D. Shingle, secretary, Wyoming Board of Medical Examiners, reports the written examination held at Cheyenne, Feb. 9-11, 1925. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was rquired to pass. Two candidates were examined and passed. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
St. Louis University	(1922)	80.3
University of Pennsylvania	(1922)	87.1

Utah January Examination

Mr. J. T. Hammond, director, Utah Department of Registration, reports the written examination held at Salt Lake City, Jan. 6-8, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. One candidate was licensed by endorsement of his credentials. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
University of Minnesota	(1923)*	86.8
Jefferson Medical College	(1924, 3)	78.9, 80.1, 81.3
University of Pennsylvania	(1924)	89.8
University of Toronto	(1920)	75.2

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Minnesota	(1924)*	Minnesota
Creighton Medical College	(1923)	Nebraska
New York Homeopathic Med. Coll. and Flower Hosp.	(1920)	New York
University of Nashville	(1903)	Kansas

ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Maryland	(1917)	U. S. Army

* This candidate has completed his medical course and received an M.B. degree, and will receive his M.D. degree on completion of a year's internship in a hospital.

Book Notices

PEDIATRICS. By Various Authors. Edited by Isaac A. Abt., M.D., Professor of Diseases of Children, Northwestern University Medical School. In eight volumes. Volume IV. Cloth. Price, $10 per volume. Pp. 1271, with 218 illustrations. Philadelphia: W. B. Saunders Company, 1924.

PEDIATRICS. By Various Authors. Edited by Isaac A. Abt., M.D., Professor of Diseases of Children, Northwestern University Medical School. Volume V. Cloth. Price, $10. Pp. 865, with 373 illustrations. Philadelphia: W. B. Saunders Company, 1924.

This tremendous compilation of our present knowledge of pediatrics continues at the high standard set by the earlier volumes. Volume IV is devoted largely to diseases of the lungs, heart, glands of internal secretion and genito-urinary tract. Among other contributions are sections on surgery of the thorax by Dr. Evarts A. Graham, on diseases of the blood and blood-forming organs by Drs. William P. Lucas and Emanuel C. Fleischner, on glands of internal secretion by Drs. R. G. Hoskins and Charles P. Emerson, and on genito-urinary conditions by Dr. Louis E. Schmidt. The articles will be found to be especially complete and practical so that the section on blood, for example, constitutes a complete guide to diagnostic methods. Volue V is devoted to orthopedic surgery, the section being under the direction of Dr. Arthur Steindler, who is himself responsible for many of the chapters. Succeeding the orthopedic section is that devoted to tropical and unusual infectious diseases. The work closes with a general discussion of infection and immunity by Dr. James P. Simonds. In this volume, tuberculosis is discussed by Dr. L. W. Sauer. One of the great difficulties in coordination in a system of medicine of this kind is the proper distribution of material through the various volumes. The arrangement usually followed is to include the infectious disorders and the tropical disorders of an infectious character under one heading. Unfortunately, the great scope of the work seems to have made it impossible to provide a perfect arrangement.

THE INSULIN TREATMENT OF DIABETES MELLITUS. By P. J. Cammidge, M.D., D.P.H. Second edition. Cloth. Price, $2.50. Pp. 216, with 31 illustrations. New York: William Wood & Co., 1924.

This brief but comprehensive work embraces the main guiding principles for the therapeutic use of insulin in diabetes mellitus, and in nondiabetic conditions, such as toxemias of pregnancy, postoperative acidosis, and cyclic vomiting of children, in which it is desirable to aid the utilization of sugar by the tissues. In addition, the book contains a short outline of the history of insulin, its possible mode of action, the indications and contraindications for its use, and its limitations and dangers. There are presented methods for treating diabetes with and without insulin. After reviewing other procedures, the author discusses his own method. This depends considerably on numerous laboratory tests and, perhaps, is too intricate for routine use.

RECENT ADVANCES IN MEDICINE, CLINICAL, LABORATORY, THERAPEUTIC. By G. E. Beaumont, M.A., D.M., F.R.C.P., Assistant Physician to the Middlesex Hospital, and E. C. Dodds, M.B., B.S., B.Sc., Chemical Pathologist to the Middlesex Hospital. Cloth. Price, $3 net. Pp. 292, with 37 illustrations. Philadelphia: P. Blakiston's Son & Co.

The authors have selected from the vast mass of medical literature such methods as they believe involve diagnosis and treatment for medical patients in a general hospital. The book is divided into chapter headings covering blood analysis, renal function, work on the pancreas and metabolism, the endocrine glands, the heart, cutaneous tests, diphtheria and the diagnosis of gastro-intestinal conditions. There are numerous excellent references to the bibliographies consulted and the methods described are given in sufficient detail to permit accurate following. The book should be a most useful

one to those who desire to avail themselves of the finer technic in laboratory diagnostic methods.

HISTOIRE DE LA SÉCRÉTION GASTRIQUE. Par M. Laeper, Professeur agrégé à la Faculté de médecine de Paris. Paper. Price, 10 francs. Pp. 120, with 25 illustrations. Paris: Masson et Cie, 1924.

This is a well written account of the history of the development of our knowledge of gastric secretion and gastric digestion from the days of Galen to the modern days of Pawlow. The volume contains references to the publications of fundamental discoveries and methods in this important phase of physiology, and the book is further rendered interesting and valuable by a series of photographs of the men who have made important contributions in the field, either in method or in facts and observations. It is to be regretted that the author did not include a final chapter on the present status of our knowledge of gastric secretion. This would have made the volume complete.

LES MANIFESTATIONS TARDIVES DE L'ENCÉPHALITE ÉPIDÉMIQUE. (Formes prolongées et reprises tardives). Par le Docteur Gabrielle Lévy. Préface du Professeur Pierre Marie. Paper. Price, 25 francs. Pp. 380. Paris: Gaston Doin, 1925.

This is mainly a reprint of the author's Paris thesis of 1922 (reviewed in THE JOURNAL, May 19, 1923, p. 1480), with the addition of a preface by Marie, seven additional pages on sensory and ocular sequels, and two new pages on respiratory phenomena. However, while the thesis contains abstracts of sixty-eight cases, only seventeen of these abstracts are found in the new book. The illustrations are the same. As we stated in the previous review, this book is a mine of information and is especially noteworthy because it expresses the views and records the observations of the author's chief, the master clinician Pierre Marie.

GYNAECOLOGY WITH OBSTETRICS. A Text-Book for Students and Practitioners. By John S. Fairbairn, M.A., B.M., B.Ch., Obstetric Physician, St. Thomas' Hospital. Cloth. Price, 8s. Pp. 360, with 129 illustrations. New York: Oxford University Press, 1924.

Here is another textbook prepared by a teacher of twenty-five years' experience in well established British institutions. It begins, as all good books should, with a brief history of obstetrics, well illustrated. It then takes up anatomy and follows through the entire field of obstetrics and gynecology. The advice, in general, is rational and quite in accord with present opinion. The author has not been deluded by the claims of endocrine therapy. He has, in fact, found the use of ovarian preparations disappointing in controlling disturbances of the climacteric. The illustrations are original, and an exceptional feature is the inclusion of a large number of roentgen-ray and anatomic plates with overlay outlines that are exceedingly instructive. The book should prove a most useful text and reference work in the fields that it covers.

L'INSULINA NELLA CURA DEL DIABETE. Per Prof. Francesco Schiassi. Paper. Price, 15 lire. Pp. 155 with 5 illustrations. Bologna: Licinio Cappelli, 1924.

The internationalism of medical sciences is interestingly reflected by the foreign language books on insulin. This one is particularly good; the Italian access to medical literature must be complete to permit such extensive review of current publications. The book is merely a summary of present knowledge of the story of insulin, supplemented by a rather limited personal experience of the author. As such it should prove valauble to Italian students in familiarizing them with all aspects of insulin treatment.

CHININUM. Scriptiones Collectae. Presented by: Bureau Tot Bevordering Van Het Kinine-Gebruik (Bureau for Increasing the Use of Quinine). Cloth. Pp. 134, with illustrations. Amsterdam: Bureau Tot Bevordering Van Het Kinine-Gebruik, 1924.

The Bureau for Increasing the Use of Quinin, located at Amsterdam, Holland, has here collected articles on the use of quinin appearing in various publications during 1923. The book includes many original articles and also extensive bibliographies. A special feature is a collection of twenty-four heliotypes of photographs taken in Java, illustrating the process of raising cinchona and of preparing quinin from it.

Medicolegal

Consulting Physician as an Expert Witness

(Kinchlow v. Kansas City, K. V. & W. Ry. Co. (Mo.), 264 S. W. R. 416)

The Supreme Court of Missouri, Division No. 1, in reversing a judgment for $15,000 damages rendered in favor of the plaintiff, says that his evidence tended to show that in a collision he was thrown backward, striking his head on the top of the seat. This court sees no objection to the plaintiff's stating that his eyes were affected by the accident, that he was nervous, and that his hearing was affected as a result. These were facts within his own knowledge. He was not testifying as an expert. He testified that he was not affected that way before, but was immediately after he was "hit on the head" in the collision. Such evidence was proper. There was no error in permitting him to testify to his loss of weight, although not specially pleaded; that tended to show the severity of the injuries and his inability to work, which he alleged in his petition and testified to in his evidence. It was not introduced as a separate injury, but as evidence of other injuries and suffering that he specifically alleged and that his evidence tended to prove.

It was contended that the question asked a physician, "What caused that?" referring to the condition of the plaintiff's nervous system found by the physician on examining the plaintiff, was erroneous, on the ground that it invaded the province of the jury. Several Missouri decisions were cited in support of this contention, but they cannot be regarded as law, as they were overruled in *O'Leary* v. *Scullin Steel Co.* (Mo.), 260 S. W. 55. In that case, it was held that an expert physician may be asked what, in his opinion, caused the condition he observed, and that he was not limited to stating what, in his opinion, might, could or would cause it, as previously held by this court.

This witness said that he was not the plaintiff's physician and did not prescribe for him, but that he was asked by the company's physician to examine the plaintiff a day or two after the accident and tell him about the man's injury; that the company's physician told him how the accident happened and the plaintiff was hurt; that they wanted him to examine the plaintiff because he was hurt on their car; and that he examined the plaintiff three or four times. From this it was clear that this witness was more than a mere expert to testify at the trial in response to hypothetic questions, and that he was a consulting physician and told the company's physician what condition he found the plaintiff in, to aid in treating the plaintiff. The company's physician was also the plaintiff's physician and treated and prescribed for him. Under such circumstances, this court thinks that this witness was also an attending physician, and as such it was competent for him to give his opinion as to what caused the condition in which he found the plaintiff.

It might be urged that the question asked the witness called for a statement of fact by him and not for his opinion only. But he was testifying simply as a physician who had not seen the accident, and it should be implied that the question called simply for his opinion. But while a physician may give his opinion based on his own observation or on the patient's statement of his symptoms or suffering at the time of his examination, or both, he may not state what his patient told him as to the manner of his injury and of his sufferings or symptoms prior to the time of his examination and then as an expert found his answer as to the cause of his condition on such statements or history of the case. Such answer, being founded on hearsay, is inadmissible and constitutes reversible error. Thus, the answer of this witness that "the blow on the back of his head caused that" (the condition inquired about) was objectionable as hearsay, as it evidently referred to the blow the plaintiff claimed he received in the collision, and was based in part on the history of the case which he obtained during his examination of the plaintiff or on what the company's physician told him. Nor was the error cured by an instruction that the opinion of experts is purely advisory; and, before accepting one of any expert,

the jury must find to be true the facts on which such expert's testimony is based.

Alleged Malpractice by Anesthetist and Dentist

(Cross v. Albee and Cross v. Stimpson (Mass.), 145 N. E. R. 45)

The Supreme Judicial Court of Massachusetts holds that verdicts were ordered rightly for each defendant; and in each case the entry must be, exceptions overruled. These were actions of tort to recover damages for personal injuries alleged to have been caused by the negligence of the defendant Albee, a practicing physician, and of the defendant Stimpson, who was engaged in the practice of dentistry. The cases were tried together. The plaintiff testified that she went to the dentist for dental treatment; that he suggested that twenty teeth be extracted, saying he would have a physician to administer ether; and that through the alleged negligence of the defendants her health was injured.

The general rule is well settled. It was the duty of the defendants in the practice of their respective professions to possess a reasonable degree of learning and skill and to exercise ordinary care and diligence.

The defendant physician was specially called to administer ether to the plaintiff. The latter fully understood that he was not employed as a general practitioner to prescribe for her ailment and become her attendant physician, or to provide necessary nursing because of her alleged enfeebled state caused by and following the extraction. No evidence was offered on which the jury would be warranted in finding that, as the plaintiff alleged, etherizing a patient to produce insensibility to pain arising from the extraction of teeth "is a serious and dangerous operation," or that "to make the treatment reasonably safe and successful required a careful diagnosis and chart of the patient's previous health, constitution and susceptibility, and a reasonable preparation and regulation of the same before the ether application." The plaintiff called the defendants as witnesses, and their evidence in direct and cross examination formed the bulk of the record. If they were believed by the jury, no lack by the defendant physician of the use of adequate medical knowledge or of professional skill was shown. If they were disbelieved, the remaining evidence as matter of law was insufficient to warrant a finding of causal connection between any negligent act of this defendant and the physical ills from which the plaintiff contended that she suffered after the operation.

The dental operations were under the sole direction and control of the defendant dentist. His evidence showed that the plaintiff was suffering from upper broken-down abscessed teeth, with some abscessed condition around the gums, and fistulas running from the ends of the roots, and pus drooling into the mouth. The scope of his employment was to extract her teeth. If the evidence of this defendant that all ordinary preliminary steps were taken in accordance with established practice were put aside, it did not appear that he was called on to examine and study the physical condition of the plaintiff further than appeared from an examination of her mouth and teeth. He was not a physician, nor was he consulted and employed by the plaintiff as a physician. It was no part of his duty after the operation to inform the plaintiff of the nature of the physical illness which was alleged to have resulted therefrom. He was under no implied obligation to treat the plaintiff for pain under her shoulder or general debility after she had returned home, or to keep himself advised of the condition of the plaintiff's mouth and teeth, and there was no evidence that he was expressly hired to prescribe remedies for ailments which were within the province of medicine and not of dentistry.

It could be found on the testimony of the defendants that in operations of the character described in the record, the proper practice is to insert a pack to keep the blood from going down the throat and to prevent possible lung developments. The plaintiff, while accepting and relying on this evidence, rejected their further statements that a proper pack was used. If the jury made this distinction, even then the plaintiff had not made out a case. A pack said by the defendants to be similar to the one used was introduced in evidence, and the plaintiff's medical expert went no farther than to say that she had never seen a pack like it used. But this was no evidence that a proper pack was not used. The burden rested on the plaintiff to prove that the defendant did not use a pack.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., May 25-29. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

Alabama Medical Association of the State of, Birmingham, April 21-24. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Acting Secretary.

American Association of Anatomists, Cleveland, April 9-11. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Association of Genito-Urinary Surgeons, Washington, D. C., May 4-6. Dr. Henry G. Bugbee, 40 East 41st St., New York, Sec'y.

American Climatological and Clinical Association, Washington, D. C., May 4-5. Dr. Arthur K. Stone, Framingham Center, Mass., Secretary.

American Dermatological Association, Washington, D. C., May 4-6. Dr. Udo J. Wile, 9 Geddes Heights, Ann Arbor, Mich., Secretary.

American Gynecological Society, Washington, D. C., May 4-6. Dr. Arthur H. Curtis, 104 South Michigan Avenue, Chicago, Secretary.

American Laryngological Association, Washington, D. C., May 4-6. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.

American Neurological Association, Washington, D. C., May 5-6. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.

American Ophthalmological Society, Washington, D. C., May 5-6. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.

American Orthopedic Association, Washington, D. C., May 4-6. Dr. DeForest P. Willard, 1630 Spruce Street, Philadelphia, Secretary.

American Otological Society, Washington, D. C., May 4-5. Dr. T. J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, Washington, D. C., May 4-6. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Psychiatric Association, Richmond, Va., May 12-15. Dr. E. D. Bond, 4401 Market Street, Philadelphia, Secretary.

American Society of Clinical Investigation, Washington, D. C., May 4. Dr. J. Chalmers, Auston, University of Pennsylvania, Philadelphia, Secretary.

American Society of Clinical Pathologists, Philadelphia, May 21-23. Dr. Ward Burdict, Metropolitan Building, Denver, Secretary.

American Society of Tropical Medicine, Washington, D. C., May 5-6. Dr. B. H. Ransom, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

American Surgical Association, Washington, D. C., May 4-6. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

American Therapeutic Society, Atlantic City, May 21-22. Dr. L. H. Taylor, The Cecil, Washington, D. C., Secretary.

American Urological Association, St. Louis, May 21-23. Dr. H. G. Hamer, Hume-Mansur Building, Indianapolis, Secretary.

Arizona Medical Association, Bisbee, April 16-18. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Little Rock, May 13-15. Dr. William R. Barthurst, 810 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Washington, D. C., May 5-7. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.

California Medical Association, Yosemite National Park, May 18-21. Dr. Emma W. Pope, Balboa Building, San Francisco, Secretary.

Congress of Physicians and Surgeons of North America, Washington, D. C., May 5-6. Dr. W. R. Steiner, 646 Asylum Avenue, Hartford, Conn., Secretary.

Connecticut State Medical Society, Bridgeport, May 20-21. Dr. Charles W. Comfort, 27 Elm Street, New Haven, Secretary.

Georgia, Medical Association of, Atlanta, May 13-15. Dr. A. H. Bunce, 65 Forrest Avenue, Atlanta, Secretary.

Hawaii, Medical Society of, Honolulu, April 24-27. Dr. Forest J. Pinkerton, 41-46 Young Building, Honolulu, Secretary.

Illinois State Medical Society, Quincy, May 19-21. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 13-15. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 5-7. Dr. J. F. Hassig, 804 Elks Building, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 21-23. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. J. A. Chatard, 1211 Cathedral Street, Baltimore, Secretary.

Minnesota State Medical Association, Minneapolis, April 27-29. Dr. E. A. Meyerding, 717 Commerce Building, St. Paul, Secretary.

Mississippi State Medical Association, Biloxi, May 12-14. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, May 5-7. Dr. E. J. Goodwin, 901 Missouri Theatre Building, St. Louis, Secretary.

National Association for the Study of Epilepsy, Richmond, Va., May 11-12. Dr. A. L. Shaw, 44 Church Street, Camden, N. Y., Secretary.

Nebraska State Medical Association, Lincoln, May 12-14. Dr. R. B. Adams, 1012 Terminal Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 19-20. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

New York, Medical Society of the State of, Syracuse, May 12-14. Dr. E. L. Hunt, 17 West 43d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, April 28-30. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Fargo, May 18-19. Dr. Alex. J. McCannel, Minot, Secretary.

Ohio State Medical Association, Columbus, May 5-7. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 12-14. Dr. C. A. Thomson, 308 Barnes Building, Muskogee, Secretary.

Radiological Society of North America, Atlantic City, N. J., May 22-23. Dr. L. J. Sandborn, 844 College Avenue, Appleton, Wis., Secretary.

South Carolina Medical Association, Spartanburg, April 21-23. Dr. F. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Nashville, April 21-23. Dr. J. F. Gallagher, Jackson Building, Nashville, Secretary.

Texas, State Medical Association of, Austin, May 5-7. Dr. Holman Taylor, 207½ West 11th Street, Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

29: 155-299 (Feb.) 1925

*Celiac Disease (Chronic Intestinal Indigestion). L. W. Sauer, Evanston. —p. 155.
*Acute Serous Encephalitis. C. L. Brown, Boston, and D. Symmers, New York.—p. 174.
*Rat-Bite Fever: Case. L. H. Dembo, H. O. Ruh, W. C. Fargo and G. R. Taylor, Cleveland.—p. 182.
*Uric Acid Metabolism of Children. J. S. Leopold, A. Bernhard and H. G. Jacobi, New York.—p. 191.
*Acidification of Milk with Vinegar (Acetic Acid) in Infant Feeding. B. S. Dunham, Toledo, Ohio.—p. 208.
*Gonorrheal Proctitis as Cause of Blood and Mucus in Stools of Infants. M. W. Bloomberg, Montreal, and L. H. Barenberg, New York. —p. 206.
*Antitoxin Intraperitoneally. H. A. Toomey, O. L. Goehle and C. C. Dauer, Cleveland.—p. 214.

Celiac Disease.—All students of this disease advocate a high protein, low carbohydrate and fat diet. Several leading clinicians recommend protein milk as the diet of choice, and advocate three stages in the dietary treatment: (1) protein milk exclusively; (2) protein milk with additional protein foods; (3) protein foods with additional carbohydrates (starches, green vegetables and sugars). Excellent results have been obtained by Sauer in six consecutive cases with powdered protein milk as the essential diet for many months. A simple, three phased high protein diet is offered, which can be used readily in the home.

Acute Serous Encephalitis.—Ten cases of a fatal disease encountered in children are reported by Brown and Symmers. The condition is of rapid onset and is initiated by such symptoms as irritability, lack of appetite, vomiting or diarrhea or both, and noticeably often by sore throat, the whole followed by elevation of temperature sometimes to the extent of 105 or 106 F. and by signs referable to derangement of the central nervous system, among them bulbar signs in the form of respiratory irregularities, ptosis, strabismus, nystagmus, papilledema, retraction of the angle of the mouth, muscular twitchings, rigidity of the neck or jaw, hemiplegia, coma, convulsions and death within thirty-six or forty-eight hours or, at longest, a few days. The cases are separable into two clinical groups, one in which convulsions are associated with one or several of the localizing signs which have just been enumerated; in the second group no such signs are present and the only obvious symptom of derangement of the central nervous system is to be found in the convulsions. The most striking feature of the convulsions is that they are absolutely uncontrollable by any of the measures commonly employed for this purpose, including the use of such drugs as morphin and chloral. Anatomically, the disease is characterized by extreme enlargement of the brain, so much so that the brain bulges when the dura is opened. The pia-arachnoid presents an intense degree of engorgement, and splotchlike hemorrhages may be present. The convolutions are flattened to an extraordinary extent, sulci are obliterated, and the brain is so soft as to give one the sensation of flowing. On section, the substance of the brain is pinkish.

Rat-Bite Fever.—A case of rat-bite fever in an infant, aged 7 months, is reported by Dembo et al. The clinical picture was essentially the same as that described by other authors. *Spirochaeta morsus-muris* was recovered from serum taken from the bite wound, by examination under dark-field illumination. Recovery took place under sulpharsphenamin therapy, three injections, each of 0.05 gm., sufficing.

Uric Acid Metabolism in Children.—Studies were made by Leopold et al. on four normal children with reference to the effect of protein on uric acid excretion. They found that gradually increasing the protein portion of the purin-free diets caused an increase in the uric acid excretion. This increased excretion of uric acid reached a maximum which was different in each case, and any further addition of protein to the diet failed to cause a further increase in the elimination and in most cases caused a decrease. The concentration of the uric acid in the blood decreased as the protein of the diet increased.

Vinegar-Milk Mixtures in Infant Feeding.—Some forty infants, chiefly of hospital and dispensary type, have been under Dunham's observation on vinegar-milk mixtures for periods of from one to six months throughout the last year. In no instance was it found necessary to change the type of feeding. The general appearance, contentment, nutrition, tissue turgor, musculature and rate of growth of the infants compare favorably and in general parallel those on lactic and citric acid mixtures. The digestion was good. Neither vomiting nor flatulence was unduly encountered. Substitution of vinegar either for or by the other acids was sometimes made without noticeable change of clinical signs. A pint of vinegar milk was made from 1 ounce (30 c.c.) of vinegar (from 5 to 6 per cent. acetic acid) to 15 ounces (450 c.c.) of cow's milk. The vinegar milk was given undiluted, except to infants younger than 2 months, who received 4 ounces (120 c.c.) of water or gruel in the total daily feeding. Corn syrup diluted with an equal volume of water was added in the amount of 1 ounce (30 c.c.) of the diluted syrup to the pint of vinegar milk. The daily amount of the diluted syrup seldom exceeded 1½ ounces (45 c.c.), and this was reduced after cereal feedings were begun.

Gonorrheal Proctitis in Infants.—Gonorrheal proctitis in infants may give rise to the presence of blood and mucus in the stools. In a series of forty-one cases reviewed by Bloomberg and Barenberg in which bloody stools were the striking sign, smears from the rectum of every child showed the presence of numerous pus cells, containing gram-negative intracellular diplococci. Repeated cultures for dysentery bacilli were negative. The majority of the infants were female, and almost every one had an active vaginitis associated with the rectal infection. In three of the male babies, acute urethritis developed during the course of the proctitis. In two cases, the gonococcus was isolated in culture from the ulcers in the rectum. The infection produces serious pathologic ulceration and is very resistant to treatment. It is, therefore, important that the diagnosis be made early, so that treatment may be instituted before marked destruction of tissue has occurred. It is suggested that some cases of chronic "idiopathic" ulcerative colitis are due to a gonococcus infection.

Diphtheria Antitoxin Intraperitoneally.—Fifty cases of diphtheria treated with commercial antitoxin, injected intraperitoneally without the admixture of saline solution, are reported by Toomey, Goehle and Dauer and are compared with 100 other cases of diphtheria, fifty treated with intramuscular and fifty with intravenous injection of diphtheria antitoxin. The method is a safe and simple one. Antitoxin may be used intraperitoneally, just as it is received from the commercial house, undiluted with saline solution. The authors regard this method as the method of choice in severe cases of toxic myocarditis.

American Journal of Ophthalmology, Chicago

8: 97-176 (Feb.) 1925

Congenital Zonular Opacity of Cornea. B. W. Key, New York.—p. 97.
Roentgenography of Optic Foramen in Tumors and Diseases of Optic Nerve. J. Van der Hoeve, Leiden, Holland.—p. 101.
United Suture for Use in Eye Operations, Particularly Cataract. C. Berens, New York.—p. 112.
Slit Lamp Apparatus. B. Graves, London.—p. 115.
Color Sense of Satin Bower Bird. C. A. Wood, Chicago.—p. 120.
Local Treatment of Corneal Diseases. F. P. Calhoun, Atlanta, Ga. —p. 123.
Contributions of Slit Lamp to Our Knowledge of Anatomy, Diagnosis, Pathology and Prognosis of Ocular Disease. R. von der Heydt, Chicago.—p. 129.
Incipient Cataract. G. F. Harkness, Davenport, Iowa.—p. 132.
Congenital Atresia of All Lacrimal Puncta with Absence of Salivary Glands. F. B. Blackmar, Columbus, Ga.—p. 139.
Spasm of Central Retinal Artery. L. L. McCoy, Seattle.—p. 140.
Traumatic Pulsating Exophthalmos. I. D. Kruskal, Brooklyn.—p. 141.

Annals of Clinical Medicine, Baltimore

3: 469-516 (Jan.) 1925

Dietetic Treatment of Gastro-Intestinal Conditions. J. A. Lichty, Clifton Springs, N. Y.—p. 469.
Thrombo-Angiitis Obliterans. L. H. Sigler, Brooklyn.—p. 475.
Necessity for Quantitative Factor in Standard Complement Fixation Test for Syphilis and Methods Whereby It May Be Obtained. R. A. Kilduffe, Philadelphia.—p. 481.
Goiter: Treatment with Iodin. A. S. Jackson, Madison, Wis.—p. 487.
Cocaascnal Treatment of Fall Hay-Fever: Cases. G. T. Brown, Washington, D. C.—p. 494.
Benjamin Franklin, Patron of Medicine. S. R. Roberts, Atlanta, Ga.—p. 501.

Journal of Bacteriology, Baltimore

10: 1-104 (Jan.) 1925

*Streptothrix Isolated from Blood in Case of Acute Rheumatism; Classification of Ray Fungi. T. Thjøtta and E. Gundersen, Christiania.—p. 1.
Chemical Differentiation of Bacteria. E. W. Stearn and A. E. Stearn, Columbia, Mo.—p. 13.
Differential Staining of Living and Dead Bacterial Spores. S. A. Koser and J. H. Mills, Urbana, Ill.—p. 25.
Anaerobic Sporulating Thermophiles. S. R. Damon and W. A. Feirer, Baltimore.—p. 37.
Survival of Bacterium Typhosum Intraperitoneally Implanted in Collodion Sacs. F. L. Gates, New York.—p. 47.
*Delta-Type Streptococcus. C. K. Bryant, Philadelphia.—p. 53.
Old Stock Cultures as Source of Bacteriophage. W. L. Mallmann.—p. 59.
Biochemistry of Granulated Lactic Acid Bacteria from Cereals. E. B. Fred, W. H. Peterson and H. R. Stiles, Madison, Wis.—p. 63.
*Value of Some Tellurium Compounds as Disinfectants. L. E. Munn and B. S. Hopkins, Urbana, Ill.—p. 79.
Investigation of Peat. A. Itano, Amherst, Mass.—p. 87.
Occurrence of Red Pigment Producing Organism in Corn Hash of Acetone Butyl Alcohol Fermentation. E. B. Fred, W. H. Peterson and W. R. Carroll, Madison, Wis.—p. 97.

Streptothrix Isolated from Blood in Acute Rheumatism.—A microbe has been isolated by Thjøtta and Gundersen from the blood of a patient suffering from a severe attack of rheumatism. They have identified it as a true fungus, and classified it as falling into Group I of Orskov. They designate it "streptothrix" or, according to Orskov, "cohnistreptothrix." As to its pathogenicity, none of the symptoms indicated infection by a fungus. The clinical picture was without any doubt that of acute rheumatism. Therefore the authors feel that their microbe cannot be taken as the etiologic agent in this case. They have tried out the complement fixing property of the patient's blood after his recovery, but were not able to detect any such property against the organism isolated from the blood. Furthermore, taking into consideration the absolute lack of pathogenicity in animals, they assume that the microbe has been a mere saprophyte without any relationship to the disease. The presence of the organism in the blood of the patient is explained by the fact that it was probably lodged in the respiratory tract as a saprophytic organism at the time when the illness began.

Delta Type Streptococcus.—In making some routine studies of streptococci isolated from root canals of pulpless teeth, Bryant has found a type which cannot be classified as any one of the four outlined by Brown. The colonies resemble Brown's alpha type in that they are immediately surrounded by a zone, greenish to the naked eye, in which the blood cells still persist but without their normal color. But they differ from the alpha type in that refrigeration fails to produce an outer zone of hemolysis. They differ from both the alpha prime and the beta types in that there is no decrease in the number of blood cells in the zone surrounding the colony. That the action of these delta type streptococci on blood agar is characteristic, and is not due to some environmental peculiarity, is proved by the fact that they have been found present in plates showing typical colonies of the alpha type in mixed culture. When isolated and replated in pure culture they have retained their characteristic action in blood agar plates through repeated generations.

Tellurium Compounds as Disinfectants.—The work which has been done by Munn and Hopkins indicates that tellurium compounds possess germicidal action, in some cases to a marked degree. As a disinfectant in the absence of organic matter, tellurium acid tartrate is more effective than phenol against *B. coli* and *B. typhosum*, but less effective against *Staphylococcus aureus*. Diethyl ammonium tellurchlorid is superior to phenol when used against *B. coli* with no organic matter present; however, the ease with which it hydrolyzes reduces its practical value. Potassium iodotellurite has a high phenol coefficient against *B. coli*, *B. typhosus* and *Staphylococcus aureus*, in the absence of organic matter. Silver ammoniotellurite has a still higher phenol coefficient than potassium iodotellurite against the same organisms and under the same conditions; silver ammoniotellurite has about the same disinfecting power as silver nitrate. Against anthrax spores silver ammoniotellurite is slightly less effective than silver nitrate; potassium iodotellurite is much less effective. The disinfecting power of silver ammoniotellurite is greater than that of silver nitrate in the presence of organic matter, using *B. coli* as the test organism; potassium iodotellurite is greatly reduced in effectiveness by organic matter, while tellurium acid tartrate is not. The potassium iodotellurite and the silver ammoniotellurite seem to be most promising, the latter comparing favorably with silver nitrate as a disinfectant.

Military Surgeon, Washington, D. C.

56: 129-240 (Feb.) 1925

Possibility of Medical Research in Military Service Because of Its Complete Control Over Personnel. W. S. Dow.—p. 129.
Reaction Time of Student Flyers. F. H. Thorne and C. F. Snell.—p. 145.
Medicine in Air Service of French Army. Bryne.—p. 153.
Journey to Kingdom of White Elephant. H. W. Jones.—p. 159.
Transportation for Medical Department in Campaign in Philippine Islands. F. H. Bloomhardt.—p. 169.

New York State Journal of Medicine, New York

25: 147-194 (Feb. 6) 1925

*How Can We Best Treat Pernicious Anemia? L. M. Warfield, Ann Arbor, Mich.—p. 147.
*Factors Involved in Acidity of Stools of Infants. A. Brown and F. F. Tisdall, Toronto, Canada.—p. 152.
Relationship of County Medical Society to Community. S. J. Kopetzky, New York.—p. 159.
Varicose Disease. R. F. Barber and F. I. Shatara, Brooklyn.—p. 162.

Pernicious Anemia.—Warfield pleads for the more intensive study of cases with a blood picture quite similar to that of idiopathic primary anemia. Should there be any free hydrochloric acid in the stomach contents after a test meal, it is more than probable that the case is not a primary but a secondary septic anemia. Some of the attention which has been lavished on the teeth, tonsils and accessory nasal sinuses should be directed to the study of the chronic infections of the gallbladder. The infection in that situation is not always readily demonstrable.

Acidity of Infants' Stools.—In this investigation more than 1,300 determinations of the p_H of infants' stools were made by Brown and Tisdall. The p_H of stools from normal, newborn, breast-fed infants was found to be singularly constant, varying from 4.7 to 5.1. The acidity of stools from artificially fed infants was found to vary from p_H 4.6 to somewhat more alkaline than p_H 8.3. An acidity as great as p_H 4.6 was encountered in artificially fed infants only in severe diarrheal conditions. Infants fed on butter soup generally had stools with an acidity of about p_H 6.0. Infants fed on protein milk, cows' milk dilutions with added carbohydrates, and whole soured milk with added carbohydrates generally had stools more alkaline than p_H 7.0. Whole soured milk, with added carbohydrates up to a total content of 20 per cent., generally produced strongly alkaline stools. No difference was consistently observed in the acidity of the stool, whether the added carbohydrate was in the form of corn syrup, dextrimaltose or cane sugar. In the present investigation the effect produced by other sugars was not determined. The degree of acidity of the stools was generally increased in the presence of parenteral infections. The factors which influence the acidity of the stools are discussed. From the chemical standpoint the acidity apparently depends on the ratio, in the intestinal zone of fermentation, of the carbohydrate on one hand to the protein and base on the other. The amount of carbohydrate in the zone of fermentation apparently is influenced by the extent of the zone of fermentation, by the type of carbohydrate and by the state of health of the intestinal cells.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Calcutta Medical Journal

19: 219-266 (Dec.) 1924

Rôle of Anaerobic Bacteria in Wounds and Infections. A. C. Ukil.—p. 219.
Recent Advances in Physiology. M. M. Dutt.—p. 234.
Vitamins. A. Roy.—p. 245.

British Medical Journal, London

1: 291-342 (Feb. 14) 1925

Immunity from Standpoint of General Medicine. T. J. Mackie.—p. 291.
How Interference in Labor May be Lessened by Examination During Pregnancy. J. S. Fairbairn.—p. 295.
Sympathetic Innervation of Striated Muscle. J. I. Hunter.—p. 298.
*Hypotonic (Flabby) Child. D. Paterson.—p. 301.
*Blood Calcium and Inorganic Phosphates in Children with Marked Lack of Muscle Tone. L. Wills.—p. 302.
Mikulicz's Disease Associated with Arrested Miliary Tuberculosis. T. W. Preston and B. L. Jeaffreson.—p. 304.
Herpes Zoster and Varicella. D. D. Ritchie.—p. 305.
Rupture of Abdominal Wall with Protrusion of Uninjured Intestine. R. W. P. Hosford.—p. 305.
Myeloid Leukemia Ending as Lymphatic Leukemia. W. Broadbent.—p. 306.
Gastric Ulcer Treated by Pylorectomy and Gastro-Enterostomy. C. L. G. Chapman and S. E. Duff.—p. 306.

Hypotonic Child.—Paterson states that factors which tend to depress metabolism produce flabbiness, while factors which tend to stimulate metabolism cure flabbiness. The factors which tend to depress metabolism and produce flabbiness are confinement, and lack of exercise, fresh air and sunshine; overclothing with consequent heat retention, overfeeding or overcalorying in relation to the child's output of energy in the day; feeding with a diet too high in cereals, too low in animal fat and protein, and defective in vitamins. The factors which tend to stimulate metabolism, and, therefore, cure flabbiness, are the reduction of the diet and especially of the cereals, retaining in the diet a sufficient amount of animal fat and protein; the administration of cod liver oil; and stimulation by sunshine, fresh ar, exercise, massage, and open air treatment, with scanty clothing to increase heat loss from the skin.

Blood Calcium in Children.—The average serum-calcium value in ten normal children Wills found to be 10.4 mg. and the range from 10.1 to 11.0 mg. per hundred cubic centimeters; and in twenty cases with inflamed tonsils and adenoids but good muscle tone it was 9.8 mg., and the range 6.6 to 10.6 mg. per hundred cubic centimeters. The average value of the inorganic phosphates of the plasma was found to be approximately normal in all three groups (fifty cases), and there was no difference in the range of values in the second and third groups. Though the calcium values were more variable in the third no relationship between the calcium level in the blood and muscle hypotonus was established. The blood picture of flabby children is not similar to that of rachitic children, though the calcium variation is the same in the two conditions.

Journal of Laryngology and Otology, Edinburgh

40: 73-144 (Feb.) 1925

*Radium Therapy in Cancer of Esophagus. W. Hill.—p. 73.
Cartilaginous Tumors of Larynx. I. Moore.—p. 84.
Some Neglected Corners of Otologic Field. J. K. Love.—p. 110.
Ulceration of Larynx Associated with Presence of Vincent's Organisms: Two Cases. E. W. Goodall.—p. 115.

Radium Therapy in Cancer of Esophagus.—Fifteen years of experience has convinced Hill that radium therapy in malignant stricture of the gullet in spite of its uncertainty and the slight element of danger connected with its use, has stood the test of time and has been of proved value in a proportion of well selected cases. While it can sometimes be usefully combined with other local measures, it has the advantage over the various intubation methods in that there is no prolonged retention of a foreign body in the gullet. Failure to get a fair proportion of good results, as evidenced by functional relief, can probably be accounted for by failure or inability to carry out a proper preliminary diagnostic investigation of the nature, site and exact dimensions of the lesion, and from want of knowledge of the exact details of the technic of carrying out the treatment with both skill and judgment.

Lancet, London

1: 265-318 (Feb. 7) 1925

Accuracy in Therapeutic Deduction. E. Bramwell.—p. 265.
Appendicitis: Its Causation, Diagnosis and Treatment. A. R. Short.—p. 269.
*Acidic Value of Urine in Skin and Other Manifestations. F. C. Doble.—p. 272.
*Prevention of High Maternal Mortality from Puerperal Sepsis. E. Cassie.—p. 274.
*Postencephalitic Psychoses. P. K. McCowan.—p. 277.
Glycosuria and Pruritus. W. S. Fenwick.—p. 279.

Acid Urine and Skin Disease.—Doble is of the opinion that urine with a high acidic value is a very much commoner condition than is generally supposed. Many people have it in a definitely pathologic degree who are apparently in perfectly good health. On the advent of some additional or superimposed strain, some organ or tissue of the body will refuse to function properly. It prevents or hinders the clearing up and healing of lesions and there seems to be no doubt that it can, by itself, poison various tissues of the body. Doble suggests that it is usually congenital but may be acquired. Treatment with alkalis will relieve the patient and allow the lesions to heal up, but the high concentration of the hydrogen ions in the urine will return and the patient will have a relapse when another strain is put on the organs or tissues. Thus it would seem that this high acidic value, apart from treatment, is permanent. Doble has found so far that exceptions to this rule are in cases of gastro-intestinal toxemia. In this type of case there is usually an erythematous or papular rash and the p_H value of the urine varies from 5 to 5.6. When the rash fades away, the p_H value of the urine returns to normal, even without treatment, showing that the phase is only a temporary one.

Lowering Mortality in Puerperal Sepsis.—Cassie believes that the prevention of puerperal sepsis and a diminution in its mortality are dependent on an improvement in (*a*) management of and attendance at childbirth; (*b*) nursing in the puerperium; (*c*) provision for treatment, and (*d*) antenatal care.

Postencephalitic Psychoses.—McCowan asserts that certifiable insanity is extremely rare as a sequel to lethargic encephalitis, but it is highly probably that the virus has the power of remaining in the central nervous system in a potent form long after the subsidence of the acute symptoms. Many cases of insanity following lethargic encephalitis may not be true sequelae, the encephalitis merely acting as a precipitating psychic cause. The possibility of suicide following lethargic encephalitis must not be lost sight of. Systematized delusions and dementia are sometimes found in postencephalitic psychoses. Psychotic symptoms during the acute phase of the disease are toxic in origin and of much better prognosis than postencephalitic psychoses. In the very rare event of recovery in the latter group it is practically certain that the case would not be one of a true sequel but of the secondary psychic type.

Medical Journal of Australia, Sydney

1: 27-50 (Jan. 10) 1925

Histologic Problems Involved in Conception of Somatic and Sympathetic Innervation of Voluntary Muscle. J. I. Hunter and O. Latham.—p. 27.

Medical Journal of South Africa, Johannesburg

20: 115-146 (Dec.) 1924

Anesthesia in Labor. G. Lange.—p. 116.
"Witkop" or "Dikwakwadi" in Bechuanaland Natives. J. A. Mitchell and G. W. Robertson.—p. 122.
Elixir G. C. I. (Guaiacol Chlorid) in Treatment of Catarrhal Lung and Laryngeal Affections. J. Maberly.—p. 126.

South African Medical Record, Cape Town

23: 1-20 (Jan. 10) 1925

Fake Doctors. F. E. van de Water.—p. 3.
Adams-Stokes Syndrome: Case. A. W. Falconer.—p. 11.
Condition of Teeth in Native Adolescents. N. Macvicar.—p. 11.

Annales de l'Institut Pasteur, Paris

39: 1-100 (Jan.) 1925

*Anatoxins. G. Ramon.—p. 1.
Phagocytosis in Local Immunity. Metalnikov and Toumanoff.—p. 22.
Species of Spirochetes in Different Countries. C. Bonne.—p. 35.
*Serotherapy of Strangles. Brocq-Rousseu et al.—p. 45.
*Local Immunization of the Eye. P. L. Carrère.—p. 67.
*Action of Saline on Microbes. L. Panisset et al.—p. 80.
Share of Phagocytosis in Action of Bismuth. Sazerac and Vaurs.—p. 86.

Anatoxins.—Ramon's immunization experiments on 150 horses showed that a more potent diphtheria antitoxin can be obtained with the diphtheria anatoxin than with the usual toxin technic. In clinical preventive vaccination, two subcutaneous injections of anatoxin, of 0.5 c.c. and 1 c.c., at a twenty days' interval, induced immunity in 90-95 per cent. of the children in five or six weeks, and in 98-100 per cent. in two months. The Schick reaction, positive at the first injection of the anatoxin, became negative afterward. The ease of estimation of the antigen titer by the flocculation reaction, and the resistance to heat make the anatoxin an important agent in the preparation of diphtheria antitoxin and in preventive treatment of diphtheria. In tetanus a more effective and more durable active immunity was conferred by tetanus anatoxin than with ordinary antitetanus serum. Ramon succeeded also in transforming in the same manner (formaldehyd in presence of heat) certain vegetable poisons into anatoxins. One injection of 1 c.c. of abrin, the phytotoxin from jequirity, induced in guinea-pigs an immunity against fifteen or twenty times the lethal dose. Six injections, of from 3 to 6 c.c. each, at four or five day intervals, enabled rabbits to resist a hundred-fold lethal dose five weeks after the first injection. The flocculation reaction occurred, in vitro, with antiabrin in presence of abrin or abrin anatoxin. Injections in rabbits of a similarly prepared solution of cobra venom conferred immunity against forty-fold the lethal dose.

Serotherapy of Strangles.—Brocq-Rousseu, Forgeot and Urbain report favorable results of treating horses with strangles by serum from animals recovered from this disease. After one or two injections, the fever subsided, the reaction being most evident at the onset of the disease. Early administration of the serum reduced by half the course of strangles. The classic methods of treatment proved decidedly more effective when used simultaneously with the specific serum. They have produced an antiserum which protects laboratory animals against virulent strains from horses.

Local Immunization of the Eye.—Vaccines from streptococci, staphylococci or pneumococci were injected into the conjunctival fornix of rabbits and guinea-pigs. This conferred local immunity against bacterial cultures, injected into the cornea or the anterior chamber twenty-four or forty-eight hours later. Inoculation with the same cultures caused grave infection in the control eye. The vaccination did not protect against cultures injected into the vitreous humor. Carrère expatiates on the advantages of a local vaccination by this means. It seems to be preferable to general vaccination in affections of the eye, since the arrest of the necrotic process, and the healing proceed more rapidly with the local immunization thus realized.

Action of Saline and Distilled Water on Microbes.—Panisset, Verge and Carneiro report that physiologic sodium chlorid solution possesses a certain bactericidal action, which varies for different species of microbes. Contrary to the opinion in vogue, they believe that distilled water does not inhibit the vitality of microbes, nor retard their growth.

Archives des Maladies de l'Appareil Digestif, Paris

15: 1-96 (Jan.) 1925

The Sphincters in the Digestive Tract. A. F. Hurst.—p. 1.
Dye Test of Liver Function. H. G. Mogena.—p. 35.
*Hematemesis in Precancer Stage. M. Delort and G. Luquet.—p. 47.
*Akathisia and Aérocoly. F. Moutier.—p. 53.
Polyneuritis in Colon Bacillus Septicemia. Roux and Lemaire.—p. 58.
Serial Blood Examinations in Appendicitis. de Martel and Antoine.—p. 67.

Hematemesis in Precancer Stage.—Delort and Luquet report a case of repeated hematemesis with melena, wrongly diagnosed as duodenal ulcer on account of hyperacidity and retarded evacuation of the stomach. The operative findings showed no ulcer, but changes in the mucous membrane of the stomach, characteristic of the precancer stage.

Morbid Fear of Sitting Down: Akathisia.—Moutier observed three patients suffering from akathisia. Gas pressure, from an abnormally distended colon, caused pain in the seated posture, and hence in these two patients there was a natural avoidance of sitting down. A functional neurosis was responsible in the third case. The patients recovered under symptomatic treatment.

Encéphale, Paris

20: 1-72 (Jan.) 1925

Analysis of Bleuler's Dementia Praecox. H. Claude et al.—p. 1.
*Microscopic Findings in Wilson's Disease. L. Pajadato.—p. 14.
*The Mind in Amyotrophic Lateral Sclerosis. L. van Bogaert.—p. 27.
*Cholesteremia in the Insane. C. J. Parhon and M. Parhon.—p. 48.
Melancholia in Syphilitic Cerebellar Syndrome. Trabaud.—p. 54.

Progressive Lenticular Degeneration.—Clinical study and microscopic examination of a case of Wilson's disease, in a young man, showed diffuse lesions predominantly localized in the lenticular nucleus, and affecting the whole neuroglia. The lesions in the liver were consecutive to the nervous lesions, the latter probably due to an epidemic encephalitis.

Mental Disturbances in Amyotrophic Lateral Sclerosis.—Out of thirty-one cases, observed by van Bogaert in three years, in ten instances the patients were affected with mental disturbances. The disturbances presented two forms, one characterized by apathy or euphoria, the other, by melancholia or manic-depressive insanity with final dementia. The mental complications seemed to have no connection with the occupation or the intellectual development of the patient. The disturbances occurred more often in women, and in the presenile period of life.

Cholesteremia in Mental Affections.—The Parhons' research apparently demonstrated that chronic alcoholism is always accompanied by an increase of cholesterol in the blood. In general paralysis the amount of cholesterol may be either augmented or reduced. Hypocholesteremia seemed to be frequent in dementia praecox, especially in the chronic forms, also in melancholia. Hypercholesteremia was almost always present in senile dementia. Ovarian insufficiency explained the hypocholesteremia in melancholic women. Hyperfunction of the suprarenal cortex may have induced hypercholesteremia in the elderly and in certain paralytics. The reduced functioning of the suprarenal cortex seemed to be the cause in hypocholesteremia with dementia praecox. In accordance with Gonalons' findings, a pronounced increase of cholesterol in the blood preceded the menses, or occurred during menstruation.

Journal de Chirurgie, Paris

25: 1-112 (Jan.) 1925

*Hemorrhagic Pancreatitis. P. Brocq.—p. 7.
Ileum-Colon End-to-Side Anastomosis. L. Michon.—p. 27.

Hemorrhagic Pancreatitis.—Brocq says that death in hemorrhagic pancreatitis is probably due to toxic shock from resorption of the products of the disintegration of the pancreatic cells. He and Binet have previously stated that the cause of hemorrhagic pancreatitis is an autolysis; the effect, an autointoxication. Another hypothesis (Sylvestri) is that the syndrome is due to true anaphylactic shock. Brocq emphasizes the importance of immediate operation. If the lesions and resulting phenomena are caused by pancreatic ferments, and particularly by abnormally active trypsin, it seems reasonable to do everything possible to check this pancreatic secretion. Ohno, in immunization experiments, injected increasing doses of pancreatic juice into the peritoneum of dogs, which became immune to a thousand-fold lethal dose; 1 c.c. of their serum neutralized a hundred and fifty-fold lethal dose. He intends to employ this serum before operations on the pancreas, and in the treatment of acute hemorrhagic pancreatitis. It is said to have been used four times on man without harm.

Nourrisson, Paris

12: 1-64 (Jan.) 1925

Urticaria in Infants. M. Pêhu and A. Simitch.—p. 1. Cont'd.
*Action of Ultraviolet Rays on Craniotabes. A. B. Marfan et al.—p. 20.
Chronic Strider in Infants. A. B. Marfan et al.—p. 26.
*Prognosis in Tuberculosis in Infants and Young Children. H. Lemaire. —p. 44.

Rapid Repair of Craniotabes Under Ultraviolet Rays.—Following Dorlencourt's report of the favorable action of ultraviolet rays on nutrition, Marfan, Dorlencourt and Turquety now direct attention to their effect in craniotabes, describing seven cases in infants under 6 months systematically treated in this way. The pathologic softening disappeared completely after a minimum of six and a maximum of eighteen sittings, with a total exposure of from twenty-seven minutes to three hours and fifty minutes. Immediate improvement was manifest in every case. After five or six sittings, with a total of thirty minutes of exposure, the areas of softening had grown notably smaller and the bone harder. There is no means for ascertaining whether the repair is with normal or pathologic bone tissue.

Prognosis in Tuberculosis in Infants and Young Children.—In Lemaire's 100 cases the mortality was 24 per cent., with a death rate of 57 per cent. during the first year of life, which decreased to 1.66 per cent. between the ages of 1 and 2½ years. Twenty-three of the twenty-four fatal cases were due to familial infection, which resulted fatally in 28 per cent. of the total number of cases, while the mortality from accidental infection was only 5.5 per cent. Splenomegaly was present in 41 per cent. of the fatal cases and in 21 per cent. of the cases with recovery.

Rivista di Clinica Pediatrica, Florence

23: 1-72 (Jan.) 1925

*Bilirubinemia in Children. V. Zamorani.—p. 1.
*Bilirubin in Meconium and Feces. V. Zamorani.—p. 9.
*Heredity in Ichthyosis. G. Salvioli.—p. 20.

Bilirubinemia in Children.—Zamorani regards even slight traces of bilirubin in the serum in children as pathologic. He used Hijman van den Bergh's method.

Bilirubin in Meconium and Feces.—Zamorani applied van den Bergh's method for the determination of bilirubin to the meconium and stools of infants. He found only the indirect reaction.

Heredity in Ichthyosis.—Salvioli publishes the hereditary features of a case of ichthyosis. It was transmitted to the males by mothers who did not have ichthyosis. Thyroid extract ameliorated the condition.

Archivos Latino-Amer. de Pediatría, Buenos Aires

15: 467-528, 1924

*The Fight Against Tuberculosis in Children. G. Aráoz Alfaro.—p. 467.
*Familial Reckling hausen's Disease. F. Bazán.—p. 474.
Acute Articular Rheumatism with Meningeal Reaction. E. Porto Pereyra.—p. 478.
Spastic Paraplegia and Brown-Sequard Syndrome in Child. A. Carrau and S. E. Borghi.—p. 484.
Scurvy in Infant Fed on Terrien's "Malt Gruel." W. Piaggio Garzón. —p. 497.
Polymorphous Erythema with Meningeal Reaction. I. Luisi.—p. 506.
Total Absence of Both Eyeballs in Two Sisters. M. F. Langon.—p. 510.
*Hydatid Cyst in Lung. J. Bonaba and C. Menendez.—p. 512.
Keratosis Resembling Ichthyosis. R. Capurro.—p. 517.

The Fight Against Tuberculosis in Children.—Aráoz Alfaro advises a campaign in three phases: First, the immediate removal of the new-born infant from the tuberculous family to an infants' asylum, preferably in the country. Secondly, after the age of 2 or 3, arrangements should be made to board the child in some family in the country, like the Grancher system in France. All underweight and debilitated children should be given the benefit of country life. Thirdly, after the age of 6, the children, invigorated by hygiene and country life, can be returned to the family, even to the tuberculous mother if she has been trained in personal prophylactic measures. After the age of 6, the tubercle bacilli encountered in the city streets, places of assembly and elsewhere, attenuated by air and light, induce an unconscious immunization which protects the child throughout its later life if its standard of health is kept high. The fight against tuberculosis consequently does not demand sequestration of the children, in prophylaxis, except in the very earliest years, but opportunities for massive infection should be avoided at all ages. A preventorium in the country for children between 2 and 6 will soon be completed near Buenos Aires. He adds that Marfan's assertion in 1898 that "scrofula" and surgical tuberculosis protected the child against pulmonary tuberculosis in later life aroused great opposition at the time, but experience has demonstrated the truth of his insight. No artificial method of vaccination to date has proved reliable, unless Calmette's recent work has solved the problem.

Familial and Hereditary Recklinghausen's Disease.—Bazán has encountered eleven cases of Recklinghausen's disease in children, and here describes the latest one. The grandfather and the father present similar patches of pigmentation and tumors; one sister the typical triad of tumors in the skin, neurofibromas and pigmentation, and two other sisters merely the pigmented patches. The patient is a girl, aged 11. Besides the small scattered tumors there is a large neurofibroma in the nose. The patches of pigmentation were pronounced in all his cases to such a degree that he accepts these patches now as evidence of Recklinghausen's disease.

Induced Pneumothorax for Hydatid Cyst in Lung.—Bonaba and Menendez present a case of echinococcosis of the lung in a boy, aged 13, with persisting profuse purulent expectoration, as a brilliant success of artificial pneumothorax. The boy passed through pneumonia of the other lung later, without apparent harm.

Clínica, Montevideo

1: 245-290, 1924

Diagnosis and Treatment of Diphtheria. J. Bonaba.—p. 245.
Initial Lesions of Tuberculosis in Children. V. Zerbino.—p. 259.
*Nervous Disturbances from Artificial Pneumothorax. R. A. Izzo. —p. 278.

Nervous Disturbances from Artificial Pneumothorax.—Izzo rejects the idea of gas embolism as the cause of the nervous symptoms which sometimes appear during the refilling or at the first application. He ascribes them to reflex action, and says that they can be warded off by a preliminary injection of a small dose of morphin, a few minutes before the insufflation. A little procain to anesthetize the path of the needle helps likewise to prevent reflex disturbances. If the latter develop, morphin should be given at once, whatever other measures are used. In the first of the two personal cases he describes, the young woman became totally blind as the refilling was concluded, with motor excitement, vomiting and headache. About 0.01 gm. of morphin was injected and in twenty minutes vision had returned and the other symptoms subsided. Instead of the usual 450 c.c. of gas, 700 had been insufflated; this had probably stretched adhesions, which started the reflex attack. In Hardoy's case total amaurosis developed in the course of the refilling; vision partially returned in six hours but was not complete until thirty-six hours later. No preliminary morphin had been given in these cases. Gandolfo says that he has noted briefly transient amaurosis in twenty cases, and in three instances it persisted for from six to twenty-five hours. In one patient amaurosis for a few minutes occurred every time the filling surpassed a pressure of 10 (Kuss), and vision was restored at once by an injection of morphin. Gas embolism may be responsible in certain cases but a reflex origin explains the group described here.

Revista de la Asoc. Médica Argentina, Buenos Aires

37: 325-419, 1924. Internal Medicine Section

Recklinghausen's Disease in Children. M. Acuña and F. Bazan.—p. 325. See abstract Jan. 3, 1925, p. 70.
Double Ectopia of the Kidneys. Carelli and Finochietto.—p. 382.
Periduodenitis. R. Novaro and A. Galindez.—p. 389.
*Etiology of Peritoneal Adhesions. Acosta and Bacigalupo.—p. 401.
*Bronchomycosis. M. R. Castex et al.—p. 408.

Peritoneal Adhesions.—Acosta and Bacigalupo remark that bacterial enteritis is usually acute and not of long duration, consequently bacteria can scarcely be incriminated for the adhesions. These constitute the last stage of a subacute protracted intestinal process, such as protozoa set up.

Bronchial Mycosis.—The colon, the liver and the bronchi were all causing symptoms, and the ameba was found in the

stools but not in the sputum, although there was recurring hemoptysis. The operation failed to reveal the expected cyst in the liver, but necropsy showed the lungs, kidneys and liver studded with nodules resembling tubercles, from which a fungus of the monilia type was grown.

37: 23-57, 1924. Otorhinolaryngology Section

Sarcoma of Frontal Bone; Extirpation. J. Layerra.—p. 23.
Helicoidal Needle. L. Samengo.—p. 29. See Abstract 33: 393, 1924.
*Neurorecurrence in Auditory Nerve. Errecart and Zubizarreta.—p. 48.

Neurorecurrence in the Auditory Nerve.—A young man suddenly became deaf in the left ear, nearly five months after the first manifestations of infection with syphilis, which had been treated with neo-arsphenamin and bismuth. Nausea, dizziness and vomiting followed for a few days, with tinnitus and horizontal and rotatory nystagmus. Under neo-arsphenamin the deafness and labyrinth symptoms promptly subsided, as also in a second similar case. There was no history of otitis in either.

Revista Mexicana de Biología, Mexico City

3: 241-270 (Jan.) 1925

Pulse in Guinea-Pigs in Valley of Mexico. M. Delgado et al.—p. 241.
*Action of Dog's Blood on Human Blood. E. Ramirez.—p. 253.
*The Lymphocyte Nucleolar Picture. González Guzmán.—p. 259.
Epidemic Cerebrospinal Meningitis. Pous Cházaro and Varela.—p. 265.
Molluscum Contagiosum Restricted to Trunk. Pous Cházaro.—p. 268.

Action of Dog Serum on Human Blood.—Ramirez reports that the dog serum had a marked destructive action on the erythrocytes in human blood. It had also an agglutinating action even in a 1.5 per cent. solution.

The Lymphocyte Nucleus Picture.—González Guzmán classifies the lymphocytes in five classes according to the number of nucleoli. The sum of the nucleoli in 100 specimens of lymphocytes is what he calls the nucleolar index of the lymphocytes. One per cent. of this index gives the average per lymphocyte, the *Coeficiente nucleolar*. Multiplying this coefficient by the number of lymphocytes per cubic millimeter in the blood stream is an index of the lymphocyte reaction. This, he says, is a dependable index of the youth of the cells.

Zeitschrift für Tuberkulose, Leipzig

41: 305-368 (Jan.) 1925

*Manifest Pulmonary Tuberculosis in Children. G. Baer.—p. 305.
Interferometer Tests for Albumin in Serum in Tuberculosis. Beltz and Kaufmann.—p. 315.
*Diagnosis of Tuberculosis in the Tropics. H. Heinemann.—p. 321.
Wassermann's Tuberculosis Antigen. M. Pinner.—p. 323.
*Sympathetic Suprarenal Tuberculosis. Y. Sumiyoshi.—p. 325.
"Occult" Better than "Latent" Tuberculosis. Mohr.—p. 329. Idem. Bochalli.—p. 330.

Prognosis of Manifest Pulmonary Tuberculosis in Children.—Baer affirms that the outcome may be favorable, the unfavorable results in the majority of cases being due to the advanced stage at the beginning of treatment. He gives detailed reports on nineteen cases of severe or mild forms.

Diagnosis of Tuberculosis in the Tropics.—Heinemann recommends the introduction of the Besredka test into the laboratories of tropic hospitals, although his tests of this reaction in 112 patients in Sumatra resulted in positive reactions not only in 91 per cent. of the active tuberculosis cases, but also in cases of syphilis, malaria, and leprosy.

Affections in Analogous Organs in Tuberculosis.—Sumiyoshi reviews the subject of the peculiar tendency in tuberculosis to involve analogous tissues, with special reference to the suprarenals. Necropsy following the injection of tubercle bacilli into the left suprarenal capsule in twenty-seven guinea-pigs, showed the right mate affected in twenty-one cases. After subcutaneous injection in twenty-one guinea-pigs, he found tuberculous changes in both suprarenals in only three, and perivascular infiltration in three.

Mitteil a. d. med. Fak. Univ. Kyushu, Fukuoka

3: 197-310, 1924

*Choroid Plexus in Mental Disease. T. Morowoka.—p. 197. Conc'n.
*Action of Liver on Bacteria in the Blood. M. Kusunoki.—p. 265.
Congenital Median Fistula of Neck. S. Shugyo.—p. 297.

Choroid Plexus in Mental Disease.—Morowoka describes the morbid changes found in the choroid plexus in twenty-five cases of mental disease, and compared with one normal subject. The findings confirm the view that the choroid plexus is the main producer and regulator of the normal cerebrospinal fluid, destroying and filtering out toxic waste products. Disturbance of its function by chronic overstimulation, as in mental diseases, or by acute causes in certain infectious diseases, may produce grave results, especially in dementia praecox. Seven plates accompany the article, which is in English.

Liver Function and Bacteria in the Blood Stream, Particularly in Portal Circulation.—In Kusunoki's experiments, chiefly on rabbits, weakly virulent bacteria introduced into the portal vein were unable to pass through the liver into the greater circulation, but the liver was unable wholly to hinder the passage of a large number of bacteria. Part of the microbes in the portal vein were diverted by the liver into the bile. The fastest bacteria passed the liver within one minute. Elimination of the germs into the bile began about three minutes after their injection into the portal blood. Stains injected into the portal circulation were eliminated similarly. A distinct difference, due to the functioning of the liver, appeared in regard to the leukocyte reaction and anatomic findings in the cases with bacteria injected into the greater circulation and into the portal circulation.

Norsk Magazin for Lægevidenskaben, Christiania

86: 1-104 (Jan.) 1925

*The Sympathetic System in Dementia Praecox. G. Langfeldt.—p. 1.
*Purulent Colon Bacillus Orchitis. F. Grøn and T. Thjøtta.—p. 33.
Difficult Diagnosis of Appendicitis. K. Lønsius.—p. 41.
*Osteomyelitis in Both Ischia. K. Haugseth.—p. 42.
Four Unusual Obstetric Cases. G. Schaanning.—p. 45.
Sømme's Graphic Signs of Chest Findings. C. Hambro.—p. 54.
*Some Tuberculosis Statistics. S. Tillisch. Supplement.—pp. 1-158.

The Sympathetic System, with Special Regard to Dementia Praecox.—Langfeldt's tests of seven normal persons and thirteen dementia praecox patients showed that the responses to pilocarpin and to atropin were seldom parallel. The pharmacologic tests alone are no gage of the tonus of the sympathetic system. He stresses the importance of the clinical findings, which always harmonize with each other. There were great differences in the behavior of the vegetative system in the eight with catatonia and the five with hebephrenia, with definite signs of vagotonia in the former when the patient was quiet. In the hebephrenia cases there were many indications of sympathicotonia. It was evident also occasionally in the motor excitement phase of catatonia.

Case of Colon Bacillus Orchitis and Epididymitis.—Grøn and Thjøtta describe a case in a patient, aged 44, with history of probable spermatocystitis for three years. The abscess in the scrotum—with colon bacilli in pure culture—had destroyed one testis and epididymis. The blood showed agglutinating and complement-deviating antibodies against the colon bacillus strain.

Bilateral Osteomyelitis in Pelvic Bones.—Haugseth's patient, a boy, aged 18, with blistered heel, was treated for a mild polyarticular infection—including both hip joints—with apparent recovery. Six months later fistulas and the roentgen findings showed osteomyelitis in the ischium on both sides. The difficulty in diagnosis was due to the unusual localization in the pelvic bones. Complete recovery followed surgical clearing out of the foci.

Statistics and Problems in Pulmonary Tuberculosis.—Tillisch's report is based on 1,905 sanatorium cases, 1910-1916 (885 men and 1,065 women). At the end of 1921, 51.8 per cent. were living; 46.6 per cent. had died from pulmonary tuberculosis, and 1.6 per cent. from other causes; 92.6 per cent. were able to work. The 35.49 per cent. with possible infection in childhood showed a life duration noticeably above the average; the 64.51 per cent. without known possibility of infection in childhood, a life duration definitely below the average. Tuberculosis in childhood apparently resulted in a relative immunity. Tuberculous infection in childhood without manifest tuberculosis conferred a less marked immunity. A tuberculous affection in childhood was established in 22.8 per cent.